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No. 1.

THE CORSET FOR MOVABLE KIDNEY.¹

BY

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(With three illustrations.)

IN presenting this subject for your consideration, it will be from the anomalous position of one who, while believing that women would be far stronger, healthier, and better fitted to perform the duties incumbent on the sex if they never wore corsets, yet advocates the wearing of a corset; and, secondly, while practising surgery, is so thoroughly convinced of the efficacy of the plan herewith laid down that he feels constrained to preach orthopedic in preference to more sanguinary measures. Let us look at this matter from the standpoint that operations on movable kidneys are but rarely necessary; that from 90 to 95 per cent of symptomatic movable kidneys can be relieved, symptomatically, by wearing a properly fitting corset; and how to select and adjust such a corset.

A woman suffering from an unrecognized movable kidney is truly an object for commiseration, who migrates from physician to physician, from one place to another, perhaps having

¹ Read in part before the Section on Gynecology, College of Physicians of Philadelphia, April 18, 1901.

had perineal and cervical lacerations repaired, ovaries, tubes, uterus, and appendix removed, drugs *ad nauseam*—a veritable “Wandering Jew” seeking relief and finding none. If by chance she runs across one who recognizes the source of her troubles, replaces and supports the movable kidney, she experiences such a sense of relief as to “make of her a new woman.”

Here let me urge upon every family practitioner the necessity of constant practice in abdominal palpation and percussion, as equally essential to his patients’ welfare as skilful recognition of lesions of the heart and lungs.

DEFINITION.—When palpating for movable kidney through the abdominal wall, we must bear in mind that, with a woman in the dorsal position during quiet respiration, the lower pole of the organ lies above the chondral border of the eighth rib; that the kidneys are not fixed organs—“they are movable, and during life, with all their anatomical relations undisturbed, they possess a range of up-and-down movement which has been estimated by Albarran at from three to five centimetres” (Moullin).

MOULLIN’S TEST FOR PATHOLOGIC MOVABLE KIDNEY.—“The failure of the kidney to reascend on tranquil expiration—coughing or straining is not fair—when the patient is standing upright and has forced the kidney down as low as she can by deep inspiration. I look upon this as sufficient, even if the kidney comes down only low enough to enable its inferior extremity to be felt. If, on the other hand, when the patient is standing upright the kidney descends on inspiration, so as to bring even half of it within reach, I should not on that account regard it as pathological, *provided it recedes as soon as the tension of the diaphragm is relaxed*. The kidney still retains its normal relation to the diaphragm, the movement of the one follows that of the other, and this I regard as the real test whether the mobility is normal or abnormal. It will not answer if she is lying down, for in this position even a greatly displaced kidney may slip back again into its bed of its own weight.”

While keeping the results of Moullin’s test in mind, we must not lose sight of the fact that the amount of suffering does not depend upon the extent of kidney excursion. Frequently minor degrees of mobility produce major suffering, and *vice versa*; also the inconstancy of kidney displacement—present to-day, absent to-morrow; freedom from pain in the morning,

intense suffering during the afternoon and evening, or until rest can be obtained.

FREQUENCY.—At the present time sufficient systematic uniform work has been done in examining women for mobile kidneys to assure us that it is a very common condition, and those who have paid most attention to this anomaly agree upon the presence of *symptom-producing* nephroptosis in at least 4 to 5 per cent of all women, or, approximately, 1,000,000 in the United States.

For the purposes of this communication a review has been made of the histories of 1,900 gynecologic patients who have come under my care, viz.: 1,000 consecutive females at the Roosevelt Hospital O. P. D., 800 consecutive females at the Northern Dispensary, and, for comparison, 100 consecutive females in private practice.

In dispensary practice, only such were noted as gave symptoms referable to the kidney, with the following results: Of the 1,000 at Roosevelt, there were 21 with movable kidney or kidneys; of the 800 Northern Dispensary patients, 7; while of the 100 examined at my office, 13 had one or both organs dislodged, with characteristic symptoms. This excess in private practice can be accounted for on the ground that the examination always included all the abdominal viscera, and that over one-half were seen in consultation.

AGE.—Of these 41 cases, the ages ranged from 20 to 60 years: 20 to 25 years, 13 cases; 26 to 30 years, 10 cases; 31 to 35 years, 9 cases; 36 to 40 years, 5 cases; 41 to 45 years, 2 cases; 47 years, 1 case; 60 years, 1 case—corresponding to the ages during which this condition is most frequently recognized.

Comby reports 18 cases personally met with in children; 2 were aged respectively 1 month and 3 months, 6 were between 1 and 10 years, and 10 were above 10 years of age. The mobility doubtless dated further back than this. Of these cases 16 were girls and 2 were boys, the same proportion of the condition as has been observed in adult life. In 14 of the cases the mobility was associated with dyspepsia and dilatation of the stomach; hereditary syphilis was obvious in 2 cases, chlorosis in 2, luetic diarrhea in 1, migraine in 1, and psoriasis in 1. In nearly every case the affection was latent; in 2 it had been mistaken for chronic appendicitis; twice it had been recognized and treated.

Suckling found movable kidney quite common among girls who serve beer, probably from being obliged to constantly

stoop and again stand upright almost immediately in drawing beer.

PREGNANCY.—Thirty-eight of these women were married, 3 unmarried, 1 of the latter having borne one child; 17 had never been pregnant; 3 had miscarried once; 1 had miscarried once and borne 3 children; another miscarried 3 times and delivered 3 children; 9 had given birth to 1 child, 8 to 3 children, 2 to 4 children, and 1 each to 5, 6, and 7 children respectively. One woman was three months pregnant at the time of examination. In one case the nephroptosis was noticed shortly after the puerperium; another followed immediately after a severe blow over the right kidney.

ABDOMINAL TUMORS.—The absence of a single case of abdominal tumor, present or having been removed, was quite notable. Three cases of lacerated perineum, second degree; in one instance a small cervical polypus; the fundus uteri lay in the hollow of the sacrum in 15; antelexion of the cervix present 3 times, bilateral pyosalpinx once, unilateral twice.

SYMPTOMATOLOGY.—The cases now under consideration were examined for movable kidney, our attention having been directed thereto by a history embodying two or more of the following quite definite symptoms:

1. The majority of these patients were thin, nervous individuals, who had wandered from one physician to another, habitual tea or coffee drinkers, always constipated, restless, sleepless, victims of the so-called sedatives, whose lives were a burden to themselves and a trial to their friends and medical adviser.

2. *Pains.* (a) Pain in the back, about the ninth dorsal vertebræ, near the tip of the scapula, or a feeling of fulness, swelling, soreness, or bloating along the flank, of a remittent type, very distressing, was given as the chief trouble in 15 instances. Such a patient complains that she *cannot wear a tight corset*, or wear no corset at all; she feels all right in the morning, dresses, shops, comes home fagged out, the distress in her side drives her almost frantic. Hastily removing her clothing and corset, with a sigh of intense relief she sinks upon the bed, draws up her knees, and, after a short nap, is able to resume her clothing. This programme may be repeated two or three times a week, or at shorter or longer intervals. Examination at this time reveals a distinct fulness along the loin, the kidney a hand's breadth below the chondral border, very sensitive to touch, not always replaceable until the

patient has rested for some time on her back; after the tension has diminished, by gentle massage the organ can be replaced. On again rising the inclination to pass water is often quite imperative, and sometimes "it seems as if she would never get through." Such a condition can only be caused by compression of the displaced kidney at the waist line (Fig. 1) when the corset is put on, or by the kidney dragging upon and kinking

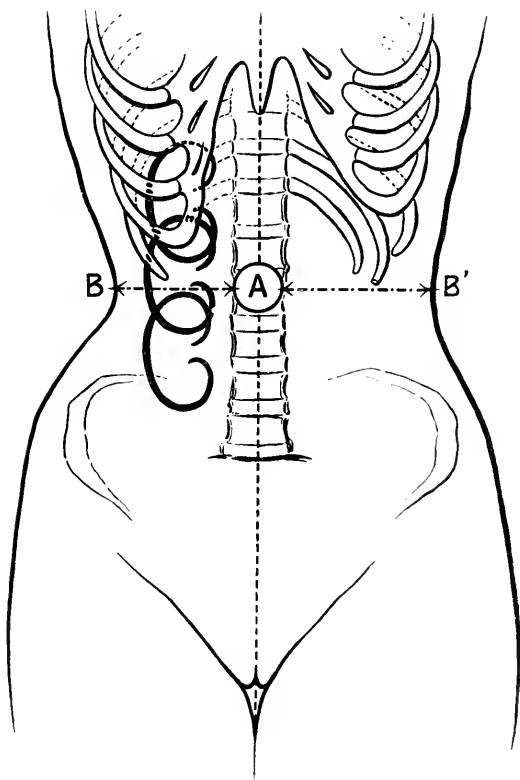


FIG. 1.—Left half of figure, without corset—absence of shelf, A-B'; right half, upper kidney supported by corset, shelf at A-B; middle kidney compressed by corset; lower kidney below waist line, inducing hydronephrosis.

the ureter, or both together, inducing temporary *hydronephrosis*.

(b) Epigastric pain, bloating, belching, inconstant appetite, and dyspepsia which had responded to no treatment, chemical or dietetic, caused 8 women to seek relief, and was relieved to a greater or less degree after the kidney had been put at rest by a corset.

(c) Lumbar pain and sacral pain (of each 4 cases) were attributed to inflammation of the utero-sacral ligaments with uterine displacement or descent, and responded to appropriate treatment. Pelvic pain (6 cases) and pain in the thighs (2 cases) were accounted for by pelvic or vaginal disease.

(d) Four patients suffered from pain in the gall bladder, another presented moderately well-marked *jaundice*. No enlargement of the gall bladder could be made out, nor was the nature of the paroxysms of the colicky kind.

(e) Painful or frequent micturition, with a burning sensation during the act, sometimes with excessive, in others diminished urine, occurred in 8, and a well-marked purulent urethritis in one patient. Appropriate local applications and internal medication were combined with support of the kidney.

(f) Appendicular pain was present in but 7 cases, and examination proved the presence of tender, thickened appendix, with or without adhesions, in all these patients. Case 124 had had a large abscess of the appendix drained March, 1895; operation for ventral hernia November, 1895; both kidneys were found movable, near the pelvic brim, not wholly replaceable, January, 1896. Owing to my inability to replace the kidneys, she was advised to wear a stout abdominal binder, and when seen, January, 1901, was very comfortable.

(g) Colitis of a catarrhal type, and to be explained as a symptom of movable kidney, caused by reflex disturbance of Meissner's plexus, 1 case having lasted two years and resisted all medication, was controlled by castor oil, thirty minims thrice daily, and support of the mobile organ.

(h) Three patients called my attention to a "lump," one on the left and in two on the right side; all proved to be displaced kidneys.

(i) The presence of a moderate enlargement of the *thyroid gland*, unilateral or bilateral, has been noted as of so common an occurrence among women, young and middle-aged, as to necessitate its recognition in every neurasthenic woman, though I find but one mentioned among the cases we are now studying. Exophthalmia is comparatively rare, but slight hypertrophy of this gland, with its deleterious effect on the heart's action, is common.

(j) *Hematuria*. Watson Cheyne has recently reported a case of hematuria caused by movable kidney, which he cured by nephrorrhaphy.

(k) *Menstrual exacerbation*. Cordier "has noticed in a

number of instances that during the menstrual period the kidney enlarges slightly and becomes more painful, and the attacks of nausea and general nervousness are more pronounced. The pain is increased by exercise, and is felt in the side affected, often shooting down the inner side of the thigh. A loaded colon, or even gaseous distension of this bowel, increases the pain. The pain is often referred to the bladder, urethra, labia majora, thighs, and to the inner side of the knee."

(l) *Foot cramp*.—In two of Cordier's cases "a cramping in the muscles on the plantar surface of the foot was a marked symptom, and cannot be explained on the theory that systemic uremic poisoning produced the spasms, as in both cases the kidney function was not perceptibly impeded in the least. The spinal and sympathetic anastomosis is the most acceptable. In both these cases the symptoms disappeared after nephorrhaphy."

EXAMINATION FOR MOVABLE KIDNEY. *The Dorsal Position*—For routine work in connection with gynecological examinations, while the patient is on the table with the knees drawn up, before making the vaginal examination it is my rule to palpate the abdomen. Standing between the patient's knees, gentle but firm pressure is made upon the suprapubic region, testing for pain, tenderness, and any enlargement of the uterus or bladder or broad ligaments; next pressure over McBurney's point to elicit appendical tenderness; up along the colon, noting the presence of fecal or other nodular masses. On reaching the right hypochondrium the examining hand is placed with the finger tips of the middle, ring, and little fingers in contact with the free chondral border, and notes the presence of gall bladder or liver enlargement. Next, while the hand is lightly held with the finger tips in contact with the ribs, the patient is instructed to take a deep, full breath, deep enough to distend the *abdomen* rather than the thorax, to shorten the diaphragm and push the liver and kidney downward toward the examining hand. If but the lightest pressure is made as the patient distends the abdomen, the kidney, especially if freely movable, will often be felt passing downward under the examining hand. Just as the patient is about to expire, the tips of the examining fingers are flexed inward and backward to prevent the displaced kidney from reascending, and is held in this position for diagnostic palpation. In a large majority of cases this simple manœuvre, practised, of

course, on both sides, will positively determine the presence of a movable kidney. For examination after this plan, loosening or removal of clothing, corsets, etc., can be avoided.

The most common source of failure is due to the fact that, when examining for the first time, pressure is made over the hypochondrium *before* the kidney has been forced down below the border of the ribs, and this pressure forces the kidney upward into its nest, holds it there, prevents its downward displacement, and defeats the object of the search.

Bimanual Examination.—If the kidney fails to exhibit downward tendencies or present itself to the examining hand in the manner above described, if the bowels are thoroughly emptied and the head and shoulders elevated, sometimes it is of advantage to palpate bimanually. For this purpose the corset must be removed, the waistbands loosened, patient in the gynecologic dorsal position. The examiner faces the corresponding side, seated or standing; if on the right, places his left hand under the loin, and his right hand lightly over the gall-bladder region. Instruct the patient to take a long, full inspiration, to force the kidney downward; then, as expiration begins, approximate the two hands, catch and palpate that organ. In a number of instances the kidney will already lie below the free chondral border, and necessitate careful palpation of the whole area from that point down to the false pelvis.

Vertical Position.—To ascertain the maximum degree of displacement of which a kidney is capable, and, in some, to make a positive diagnosis, it is necessary to seat the woman on a chair, with her hands and head inclined forward, resting upon the back of another chair, while palpating bimanually.

Not infrequently, when examining in the vertical position, the mobile kidney can more readily be made out by grasping the loin between the thumb and fingers—the thumb behind, fingers in front—compression being made after full inspiration. As the woman expires, the kidney will be felt to slip upward from between the fingers with a slight jerk, noticeable to the examiner and painful to the patient.

If the woman is not below the average height, she can stand behind a chair, place the flexed elbows upon its back, and in this way relax the abdominal wall to its greatest extent. This and the former position afford the best opportunity for applying Moullin's test.

Left Lateral Position.—Sims' position, as suggested by

Israel, for the discovery of a movable kidney, seems to the writer somewhat fallacious, as, owing to the breadth of the hips in women, the tendency would be to dislodge the kidney and viscera upward and obscure the true relations.

Palpating the Kidney.—Our examinations have shown a greater frequency of displaced left to right (6 in 25) and of both kidneys (10 in 41) than illustrated by the following table:

Author.	Cases.	Left.	Right.	Both.	Where Recorded.
Einhorn...	26	1	25	0	Amer. Year Book Med., 1900, 248.
Gallant....	41	6	25	10	
Keen	87	7	76	4	Trans. Amer. Surg. Soc., 1890.
Landau....	178	13	151	14	Arch. für klin. Chir., 1879.
Godart-					
Danhieux	212	1	183	29	Gaz. hebdom. de med. et chir., 1900.

Mobility.—Keeping in mind the fact that all of the cases now under consideration were productive of well-marked symptoms, the following table well shows how very slight a displacement can at times induce agonizing suffering:

OWNWARD DISPLACEMENT (viz., that portion of the kidney palpable below free chondral border of the eighth and ninth ribs).

1	2	3	4	5	6	7	8	9	10	12	13	15	cm.	Pelvic	brim.	??
3	2	3	1	2	3	1	4	1	5	8	1	4		3		10 cases.

The *size* of the kidney may be misleading; in one case that organ was very small, fortunately the whole organ was palpable; another (570R) double the normal size, without any manifestation of actual pathologic lesion in the organ itself.

Right Lumbar Flattening.—Mansell Moullin insists that “in a very large number of cases of movable right kidney there is a definite flattening of the right lumbar region, which is not due to the malposition or even to absence of the right kidney. . . . The flattening is a sign that the vertebræ have undergone a certain degree of rotation, and it is an indication of the cause of displacement, not a consequence of it. . . . From a position of greatest safety (in quadrupedal mammalia), with the assumption of the erect attitude the kidneys are placed in a position from which almost all security has gone, and it is not to be wondered at that comparatively trivial causes, such as increase in weight of the organ without corresponding

increase in bulk, a sudden violent jerk, or a great lowering of the intra-abdominal pressure, can increase their normal range of mobility and force them downward. The wonder is, not that movable kidney occurs, but that it does not occur more often."

While the kidney is held in the grasp of the examiner's hands its characteristic shape can be mapped out, the hilus defined, and the pulsations of the renal vessels recognized. Cordier mentions that "on pressure a sickening pain is (sometimes) produced, very similar to that made by firm pressure on the ovary or testicle. . . . A sensation similar to that produced by shooting a plum seed between the fingers may be elicited by the examiner by grasping the organ between the two hands and pressing them firmly together" as the organ retreats upward into its bed.

Occasionally, in women with thick, tense, distended abdominal walls, the administration of an anesthetic for the purpose of determining more definitely the actual condition will be a wise precaution.

Undue prominence of the *pulsating abdominal aorta*, very sensitive to pressure and a source of discomfort to the patient, has been so frequently noticed when palpating the abdomen that it is believed to have some connection with this malposition of the kidney.

Cordier was struck by the frequency of this throbbing in the region of the abdominal aorta, and this vessel's impulse was so plainly felt that an *aneurism* was suspected and added to the throbbing a distinct *bruit*. On pressing the kidney into its natural position he noticed that the pulsation diminished very much and the decrease in the pulsation enlargement was very perceptible. In explanation of these phenomena he suggests "that the aorta with the vena cava was pulled out of its 'bed,' or that a slight kinking produced a partial constriction of the aorta and a dilatation above or below the point obstructed." It was in 1884 that Landau called attention to the advantages of *auscultation* in eliciting a whistling murmur when a twisting or narrowing of the renal vessels occurred.

Palpation of the appendix vermiformis, by deep pressure over the right iliac fossa, owing to the frequent association of appendicitis with dislocated kidney, makes a recognition of the true condition of the appendix imperative, and with Edebohl's^b we believe that even though the kidney has been anchored to the lumbar region, the patient will not be cured until the

diseased appendix has been removed. But, better still, if the kidney is held in place by a corset, in nearly all cases we can, with advantage to the patient, determine, without operation on the kidney, exactly what symptoms are due to the appendicitis and if its removal is unavoidable.

Enteroptosis associated with movable kidney has received careful study by Godart-Danhieux, who made a series of 871 observations on patients, most of whom showed disturbance of nutrition. In 268 males he found the kidney movable six times; once it was bilateral, and in the other instances on the right. In 603 women he found 212 cases of nephroptosis; in 183 cases this was of the right kidney, in 29 bilateral, and only once was the left kidney alone affected. The general percentage of nephroptosis in men was 2.33 per cent, in women 35.1 per cent. In the 603 women he found enteroptosis 178 times—that is, in 29.5 per cent. He also found ptosis of the liver in 3.8 per cent of the women. He believes that the most common cause of enteroptosis is a series of pregnancies, these acting through the diminution of abdominal tension. Age accentuates the tendency to enteroptosis, even in nulliparæ; on the contrary, neither repeated pregnancy, advanced age, nor similar conditions have any influence upon the production of movable kidney. He considers enteroptosis to be always produced by a diminution of abdominal tension. It is not always accompanied by nephroptosis. There is no parallelism between the two conditions at different ages and under the influence of different factors. He thinks, therefore, that they are due to different causes.

DIAGNOSIS.—The recognition of a movable kidney in thin or moderately nourished women, if the bowels are empty, when a part or the whole of the organ can be palpated, and it suddenly slips back into its bed, especially if the appendix is the seat of a chronic inflammation, the diagnosis is a matter which every practitioner ought to be prepared to determine.

On the other hand, when the abdominal wall is thick or rigid; when the symptoms point to gallstones impacted in the cystic or common duct, with or without jaundice, to cysticercus cyst, to a false or dislocated lobe of the liver; if associated with enteroptosis, gastropptosis, uterine displacements, and other pelvic disorders; if it resembles malignant disease of the stomach, pylorus, duodenum, liver, or colon; if the spleen or pancreas has become loosened; if the kidney is but slightly movable or has been congenitally displaced; if a third kidney,

whether freely movable or attached in the false or true pelvis, be present—the diagnosis presents a much more complicated problem, as illustrated by the following cases:

Gallstones versus Movable Kidney.—Mrs. X., 47 years, multipara, of full habit, well nourished, flabby abdominal wall, has for fifteen years suffered with infrequent attacks of gastralgia, necessitating the use of morphine as the only drug which would allay the pain.

In July, 1900, she was prostrated by an attack, with pain in the epigastrium and right hypochondrium, extending through to the back, and of such severity that she was kept under the influence of opium for eleven days and in bed for five weeks.

When seen by the writer, September 6, 1900, she was deeply jaundiced, really a chocolate color, with severe gastritis, manifested by inability to retain food, liquid or solid, stools clay color, and insomnia of a very pronounced type. The region of the gall bladder was very tender; the gall bladder could not be made out, but gave a sense of resistance and fulness on pressure. The bowels were freely moved by salines, patient kept in bed most of the time, and on September 28, when she started for her country home, the skin was nearly of a normal hue. While on the train she experienced a comparatively slight return of the pain in the gall-bladder region, with reappearance of the jaundice lasting a few days.

November 10, 1900, the paroxysmal pain returned, especially severe in the back, and associated with a band-like sensation; severe nausea and vomiting, inability to retain even water, severe headache and insomnia: vomits clear mucus or whatever had been ingested; pain relieved by morphine, less and easier when lying on her back or right side; cannot lie on left side; gall bladder palpable, distended, with a mass behind it, the nature of which I was unable to determine.

November 14, 1900, in consultation with Drs. Delafield and Bull, both agreed as to the diagnosis of gallstones passing through the common duct, and advised operation after the jaundice had subsided, unless a severe attack came on which could not be controlled by opiates, then operate at once.

Not being satisfied as to the exact nature of the mass behind the gall bladder, further careful palpation convinced me that the greater portion was the lower pole of the considerably enlarged kidney, which could not be replaced. By carefully applied massage and manipulation the kidney was in three days elevated to a level with the chondral border, the condi-

tion explained to the patient, who was willing to accept any plan of treatment to avoid operation. While in bed she wore a very snug abdominal binder, and a tight corset, applied while on her back, before getting on her feet. She then recalled the fact that "she always felt better with her corset on." Up to January 6, 1901, she followed my instructions, but, "being Sunday and feeling so good," she sat up reading nearly all day *without* her corset, and at midnight the old pain returned with such severity that she begged for morphine, and half an hour later was peacefully sleeping. Even this transient attack increased the marked discoloration of the whole body. At this time she called my attention to the fact that she realizes several hours beforehand when the attack is coming, "because there is always an intense desire to empty the bowels, which is not relieved when the bowels do move."

The most careful search failed to reveal any gallstones in the stools.

Up to the present writing there has been no recurrence of the attacks, and, as the patient expresses it, she "is doing finely."

MacLagan and Treves record three cases of jaundice believed to be due to gallstones, but on operation were found to arise from movable kidney, in two cases producing "pressure on the cystic duct," and in the third case from "pressure on the common duct." They noted that in the former the jaundice was less and the pain probably less severe than when the pressure was exerted on the common duct.

F. I. Pool reports a case of movable kidney with hydro-nephrosis and gallstone in the same patient. She was 45 years of age. Her trouble had existed for twenty years, and recurred at long intervals. It consisted of severe paroxysms of pain in the right lumbar region, which also extended through in the direction of the groin. The paroxysms were accompanied by vomiting, and there was jaundice. The urine was normal, and she stated that on several occasions she felt the bladder rapidly fill up with a sensation of relief. On examination the kidney was found to be enlarged and movable, and an operation for fixing and draining it was undertaken. The usual lumbar incision was made. At the back of the kidney was felt a large stone, which seemed to be in a dilated pelvis, but it remained behind on withdrawing the kidney, which was freely movable in the loose perinephritic fat. An exploratory incision was made through the anterior abdominal wall. The

gall bladder was found to be thickened, and contained a large stone, which was removed, and the opening in the gall bladder was sutured to the edges of the abdominal wound. An incision was made into the pelvis of the kidney, which, with the ureter, was explored, but no cause for the hydronephrosis was found.

TREATMENT OF SYMPTOMATIC MOVABLE KIDNEY.—The relief from suffering induced by a movable kidney or kidneys involves (a) maintenance of the organ in its natural position by mechanical means or by operation, and (b) efforts toward improving the general condition of our patient.

Operation.—Before considering the corset as a mechanical means in the treatment of nephroptosis, let us inquire:

1. What does fixation of a kidney accomplish?
2. What are its sequelæ?
3. What does it fail to accomplish?

1. Fixation of the kidney, by whatever method, endeavors to anchor in an abnormal, stationary position an organ which naturally lies upon a soft, fatty cushion, in a strongly protected position, vacillating with every respiratory impulse. Does not this plan simply transfer the weight of the organ from its vascular pedicle to the lumbar cicatrix? Have we not the same difficulties to contend with as in ventral fixation of the uterus or by Alexander's operation for uterine displacements?

Byron Robinson, in his incisive way, tells us that he "has watched the hanging of kidneys in Chicago for the past ten years, and has found that it is the amateurs and general surgeons who resort to nephrorrhaphy and nephropexy, not the gynecologists," and maintains that this condition must be treated by mechanical means.

2. That, so far, no plan of operation has achieved all that some authors would have us believe is quite evident when Senn condemns in the strongest manner the use of any suture in the kidney; while McArthur advises placing the kidney in a pocket from the anterior layer of the lumbar fascia and the transversalis aponeurosis; Ferguson passes a band of the lumbar fascia around the lower pole to support it; Morris strips off a portion of the capsule and sutures it to the fascia, etc., each endeavoring to devise a plan which will assure success, avoid sequelæ, and permanently retain the kidney in its abnormal position.

Whether due to buried sutures, fibrous tissue, or to "cut-

ting the ilio-lumbar and ilio-gluteal nerves by careless operators," complaints from physicians and patients are becoming more numerous that post-operative pain and failures occur and that relief of symptoms is not always assured.

3. In many instances the symptoms from which the patient seeks relief, while simulating those of nephroptosis, even when the kidneys can be partially or wholly palpated, may be due to other lesions. Thus we find that fixation of the kidney does not benefit the relaxed abdominal wall with its accompanying enteroptosis, gastritis, constipation, etc., and the operation becomes in many instances "an experiment to determine what symptoms are due to the dislocation and what are due to other conditions."

Mistaken diagnoses, operations for gallstone (MacLagan and Treves), ovarian cysts (Miller), appendicitis, etc., should make one hesitate and apply any diagnostic means before subjecting a woman to the risks of an operation, however slight, with at least one death from tetanus reported by Henry Thompson.

Comparing the results of *nephrorrhaphy vs. support*, E. Henock concludes "that the radical operation for floating (movable) kidney undoubtedly gives brilliant results in some cases. It is, however, not entirely harmless, and the mere fixation with suture is not always of permanent value. Again, the patients are very reluctant to undergo operative intervention, and submit only when the discomfort and pain are unbearable—a condition which, on the whole, is very rare. For the most part, then, we try to alleviate the condition with bandages and supports. These give the patient more confidence and support, as it were, and are therefore to be recommended."

Mechanical Means.—Every careful observer has met with patients who have derived benefit from the use of one or other of the numerous belts, pads, etc., but almost all come to realize that belts are difficult to retain in position, that pads slip and do not maintain the kidney, and all by their additional bulk are very objectionable to the wearer, and, by pressure localized at one portion of the abdomen, further increase rather than diminish the accompanying visceral ptosis. *Abdominal binders*, when properly made, do tend to elevate and support the redundant abdominal wall, but do not bring direct support to the dislocated kidney.

The writer was first led to study the use of the corset by Edebohls' ^a statement "that a well-fitting, rather tight cor-

set answers still better in males, and in women in whom no contraindication to the wearing of a corset exists. Other than the foregoing, no reference as to style of corset and method of application could be found in literature.

The Corset.—Do women wear corsets because they enjoy thus being harnessed up? I trow not.

About seven hundred years ago a *demimondaine*, with a view of intensifying her charms, encased her body in a corsage of steel; and as centuries rolled on, this monstrosity—modified, it is true—has come to be considered an essential part of every woman's outfit from the time she reaches puberty. Thus has the so-called civilized woman's world been dominated by the courtesan, whose invention has become a custom inexorable as the laws of the Medes and Persians, which but few women have the moral courage to defy. Nor is this the only reason. The present style of feminine architecture, with all the clothing dependent from and overlying at the waist, necessitates the wearing of some material around the waist which will support the great weight and prevent actual injury to the tissues at that point.

Can we of the sterner sex, while submitting to the present styles in collars, hats, shoes, etc., take issue with them on this score? Can we consistently cry out against our fair sisters, the doctor's best friends? And what avail our cries against the dictum of *La Mode*, to whose behests we ourselves dare not turn a deaf ear? Personally, I am willing to fall in line with Prof. Virchow when he says: "In days gone by I have battled against the diabolical invention called the corset, but the crusade has been given up by me as absolutely futile" (Galbraith). I feel that it were better for us as a profession to seek rather to teach women how the corset can be rendered *least harmful*, and to take advantage of this (doubly) inflexible custom in relieving women who suffer from movable kidneys.

The Corset for Symptomatic Movable Kidneys—Style. In the majority of instances a woman, when selecting a corset, aims to secure such a one as will most nearly compress her body into a size and shape corresponding to her own preconceived notions of the prevailing mode, regardless of personal discomfort, pain, or injury.

Among those who can afford to have corsets made "to order"—and this is without doubt the best plan—there are some who, in spite of the solicitations of corset-maker, dress-maker, and friends, persist in deforming themselves to such a

degree as to wring from us that agonizing prayer of the famous Scotch connoisseur:

“Wad some power the giftie gie us
To see oursel’s as ithers see us!”

When considering the style of corset for movable kidney, we endeavor to select one as *long in front as can be worn*, to prevent or overcome suprapubic protuberance with its accom-

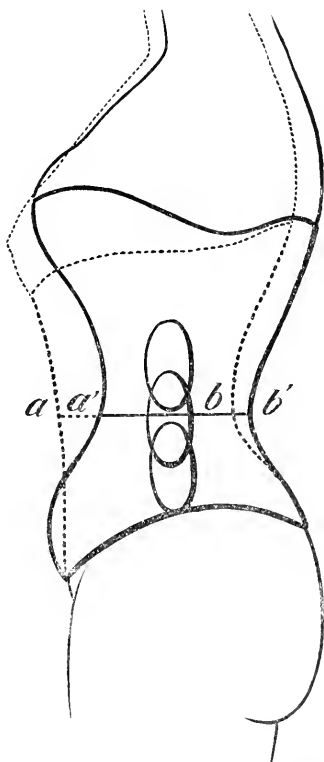


FIG. 2.—Heavy outline showing excessive constriction at waist line, $a'-b'$, productive of suprapubic protuberance. Dotted outline showing corset adjusted to support the lower abdominal wall, and greater circumference at the waist line $a-b$.

panying visceral ptoses (Fig. 2). Fortunately for our purpose, Dame Mode has decreed that the so-called “straight-front” corset is the “proper thing.” These corsets are made with long, straight fronts, designed to erase the suprapubic projection and give especial prominence and an overhanging effect to the bust from the waist line upward. This is usually accomplished by drawing the abdominal wall upward within

the corset as it is fastened from below upward, and really gives considerable support to the abdominal wall, at the same time it prevents excessive lacing at the waist line and lessens respiratory effort.

Size. The corset should be at least two inches smaller than has been habitually worn. You may well ask, how can a woman who has been unable to wear a tight corset, or no corset at all, be expected to put on one so much smaller?

Lacing the corset. When the kidney drops down to or below the waist line and the patient attempts to fasten her corset in the usual way, the kidney is included in the grasp of the corset and causes excruciating pain (Fig. 1). When the kidney is supported above the waist line this pain is not met with.

The corset should be laced with two wide, flat silk strings, beginning with one at the top, the other at the bottom, tying the two together in the middle. The lacing should be so adjusted as to give a V-shaped opening at the back, fitting very snugly over the hips and up to the waist line, less so from the waist upward. When adjusting the corset for the first time it must, of course, be fitted with the woman in the upright position, and readjusted after the corset has been put on, always with the idea of securing the greatest pressure and support for the lower abdomen.

First-class corsets have lacing over each hip, thereby adding to their flexibility and facilitating proper adaptation to the figure.

Putting on the corset. As ordinarily worn, corsets are shaped and put on in such a way as to compress the colon, small intestines, and pelvic viscera downward, crowding upward the liver, stomach, spleen, etc., and interfering seriously with their normal shape and functions. This result is chiefly due to the magnificent efforts, if applied in a proper direction, of the wearer to minimize the circumference of her waist. In order to prevent this in young women and overcome it in those of a more advanced age, we have sought such a style of corset, laced and put on in such a way, as will exert the greatest pressure over the suprapubic region and make extreme constriction of the waist an impossibility (Fig. 2).

Having approximately adjusted the corset to our patient's figure, she must place it around her waist and lie down upon the bed, with the knees drawn up, and fasten the hooks, beginning with the lowest, and secure the next in order from below upward.

As each succeeding hook is fastened the lax abdominal wall is drawn upward within the corset and held in that position by fastening the next hook. This manœuvre will seem at first somewhat difficult; but as it affords a fashionable outline to the figure and at once gives relief from symptoms, women are willing to persevere.

Before fastening the upper hooks of the corset the patient must push the kidney well up under the chondral border of the ribs. Patients readily learn to recognize the "movable lump" as the cause of their troubles, and how to press it upward beneath the ribs.

A victim of movable kidney must never be allowed to maintain the upright posture until the corset has been put on, and must wear it constantly when not reclining.

In advising women to wear a corset we restore a lifelong habit, suspended on account of the intolerable pain when wearing a corset; we suggest that it be of such a shape and style, laced in such a way, put on in such a position as will improve her figure (from a modish standpoint, at least), minimize the harmful effects of the corset, and prevent suffering from nephroptosis.

Too great stress cannot be placed upon the importance of the dorsal position when putting on the corset, as it relaxes the abdominal wall, permits the abdominal viscera to gravitate upward into their normal situation and be retained there, as the corset is fastened while they are *in situ* (Fig. 3).

A corset made and put on according to these directions should mould the figure into graceful outlines; should not constrict at any one point; nor should it be felt to exert more pressure over one portion of the trunk than another. Further, it should not interfere with the suppleness of the spine, a graceful walk, or lung expansion.

Precautions.—Whenever *pain or tenderness*, or both, are present along the loin or the hypochondrium, *before* attempting to put on a corset the patient must be put in bed for a few days on a fluid or light diet, the bowels moved twice daily, and eight to ten hours' sleep assured, with daily massage of the trunk and extremities, giving especial attention to replacement of the dislodged kidney.

While a movable kidney can be held in position and the discomfort incident thereto abated, one must give the most careful attention to building up the patient's general health. Thin, neurasthenic women should be kept in bed; nourish-

ment, including an unusual amount of fats, given every three hours; the bowels moved twice daily, with not less than from one to two quarts of an agreeable water daily for its effect in increasing weight and salutary flushing of the kidneys and intestines. In others it may be necessary to lavage the stomach, adjust glasses for defective vision, and in all to secure from eight to ten hours' sleep, with complete rest from care, noise, and excitement.

Thyroiditis. In many neurasthenics (so-called) a slight enlargement of the *thyroid gland*, with irregular cardiac action, a rapid, contracted, hard or soft pulse, has been noted. This hypertrophy can be readily recognized, on one or both sides, by placing the index or middle finger on either side of the

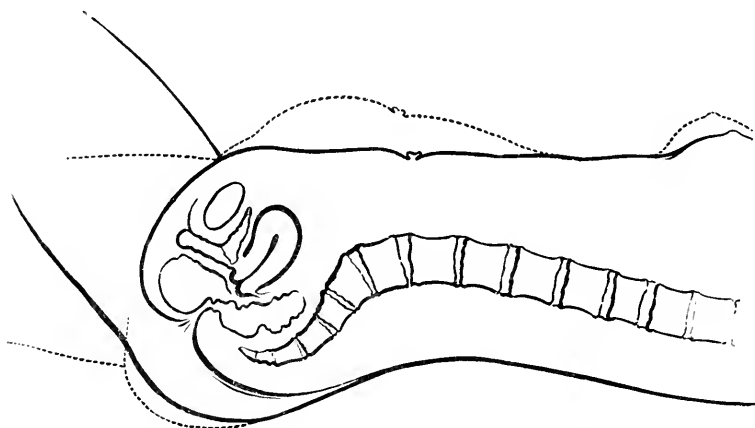


FIG. 3.—Abdominal relaxation when in the dorsal position (heavy outline) compared with abdominal projection when erect (dotted outline).

thyroid cartilage, when, as the patient attempts to swallow, the slightest increase in size can be appreciated and appropriate treatment instituted.

It is hardly necessary to insist that careful attention be paid to the pelvic cavity and floor, that local treatment, removal of diseased organs, and repairs are essential for complete restoration to health.

RÉSUMÉ.—1. In view of the great frequency and intolerable suffering incident to *symptomatic movable kidney*, especially among women, every physician should be thoroughly familiar with the special group of symptoms manifested thereby and the simple methods for recognizing abnormal mobility of that organ.

2. For routine work the hand is placed just below the hypochondrium and the kidney displaced by deep inspiration, held and palpated, and allowed to escape during expiration. In some cases for the bimanual examination the dorsal or the upright inclined posture will prove more satisfactory.

3. While a certain number of these cases are subjects for operation, the other 90 to 95 per cent can be cured symptomatically by wearing a corset.

4. When advising the use of a corset, and directing how it shall be made, fitted, and put on, we appeal to our patient's vanity, aid her in conforming to the dictates of fashion in the least harmful way, and relieve her from the tyranny of suffering.

5. For this purpose we must secure a corset as long in front as can be worn, to elevate and support the redundant lower abdominal wall, and form at the waist line a shelf upon which the kidney may rest.

6. The best results, symptomatic and modish, are secured when the corset is "made to order," but the so-called "straight-front" corset, now on sale in every shop, has given very good results.

7. The corset must be not less than two inches smaller than formerly worn, laced at the back, from the top and bottom, with two flat laces, as an open V, to prevent chafing and cutting in thin women, and must be laced very snugly from the lowest point to the waist line, loosely from the waist upward, while the patient is standing.

8. Having thrown the corset around the waist, she lies down upon the bed, draws up the knees, places the head upon a pillow to relax the abdomen and permit the viscera to gravitate upward toward the diaphragm, and while in this position fastens the corset.

9. Before hooking the corset she must push the kidney into its nest under the edge of the ribs—a very simple matter when once learned.

10. The lowest hook of the corset must be fastened first, and so on from below upward. As each succeeding hook is secured the redundant abdominal wall must be drawn within the corset.

11. Any woman a victim of nephroptosis must never be permitted to maintain the upright position without having her corset on.

12. Such a corset, fitted and applied in this way, will (a)

maintain a replaceable kidney in such a position, from which it cannot be dislodged downward, as to afford relief from all symptoms incident thereto; (*b*) by elevating and supporting the lower abdominal wall it will tend to prevent or overcome the effects of visceral ptoses, which nephrorrhaphy cannot do; (*c*) it will, with the kidney at rest, determine if the symptoms are due to mobility of that organ or disease in adjacent structures, and thus avoid mistaken diagnoses; (*d*) as the patient's general condition improves and she puts on flesh, the kidney will descend less and less, and, in some, entire freedom from symptoms has resulted; (*e*) the patient avoids the risks of operation, slight as these may be, the scars and after-pain and failures; and (*f*) if for any special reason the corset cannot be worn, we may at any time, *en dernier ressort*, suture the kidney to the lumbar region.

60 WEST FIFTY-SIXTH STREET.

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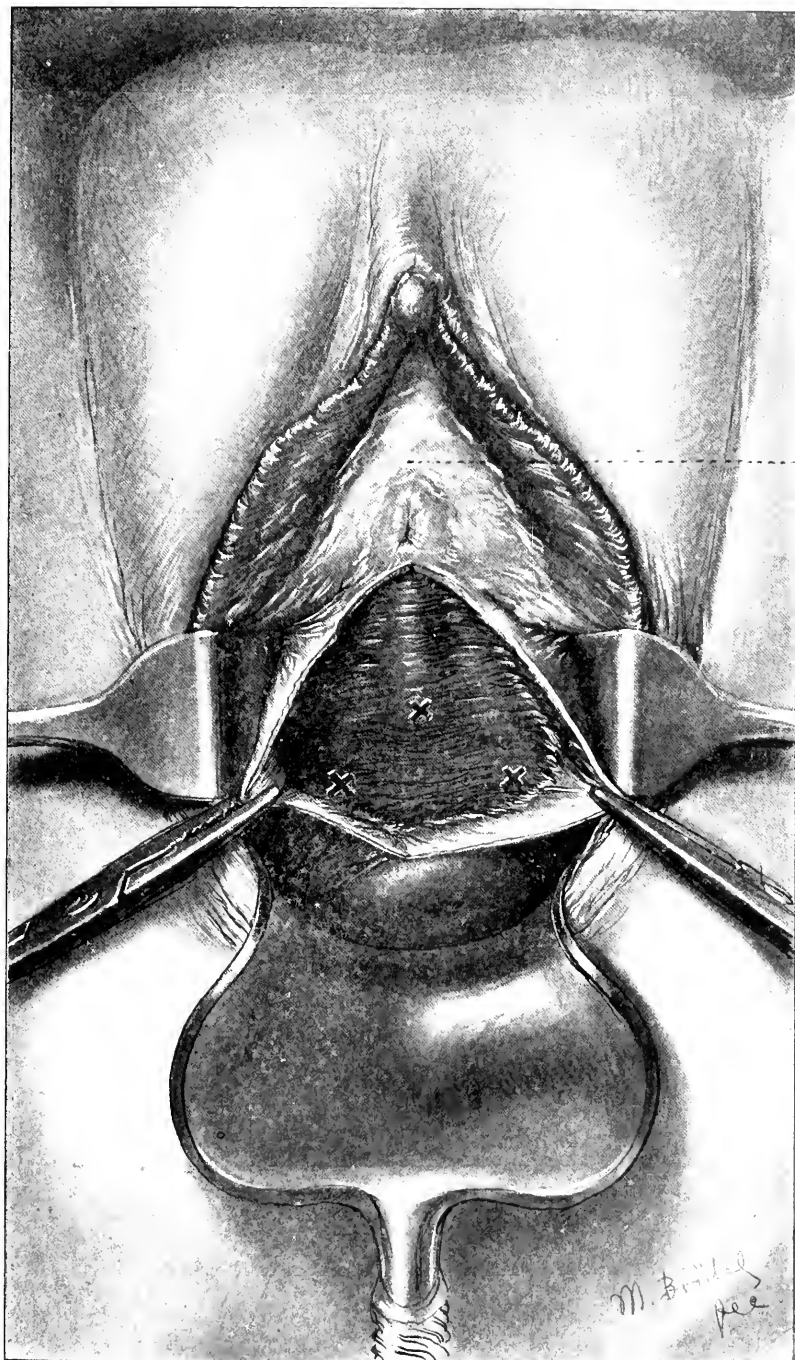


FIG. 1

OPENING AND DRAINING THE BLADDER IN WOMEN—Kemp.

A NEW AND BETTER METHOD OF OPENING AND OF
DRAINING THE BLADDER IN WOMEN.¹

BY

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Baltimore, Md.

(With four illustrations.)

IN cases of advanced cystitis where almost the entire bladder is involved and where there are areas of ulceration, it is best to begin the treatment by draining the bladder for some weeks, and keeping the patient for several hours each day in a tub of warm water at a temperature of about 38° to 39° C. (100° to 102° F.).

The ordinary method of opening the bladder by retracting the posterior vaginal wall and fixing the cervix, and then dissecting through the vascular vaginal and the thick contracted bladder walls, is often slow, awkward, and difficult. In the first place, the operator is sometimes embarrassed by the numerous vaginal folds; and, again, the extreme vascularity of the tissues causes a constant annoying hemorrhage; and then, too, he is apt to make a funnel-shaped opening smallest on the vesical side, which gives but poor drainage. I would add also to these difficulties that of locating with precision the neck of the bladder.

In place of the usual operation just described, I have devised a new, extremely simple, and perfectly satisfactory method. The patient's bladder is emptied and she is put in the knee-breast position. A catheter is next introduced, allowing the air to rush in and stretch the bladder to a maximum. An assistant then lifts up the posterior vaginal wall, so as to expose the stretched anterior vaginal wall with the cervix uteri at a maximum distance. The operator then takes in hand the knife attached at an angle to a handle which is also bent as shown in the figure. He plunges this knife through the vesico-vaginal septum in the median line at a point about 1½ centimetres in front of the cervix; in this way the bladder is

¹ From Johns Hopkins Hospital Medical Society, May 20, 1901.

opened, and by drawing the knife down toward the urethra the incision is made any desired length. By putting the finger in the incision into the bladder, the internal orifice of the urethra is located and the knife safely guided as far forward as it is desirable to cut.

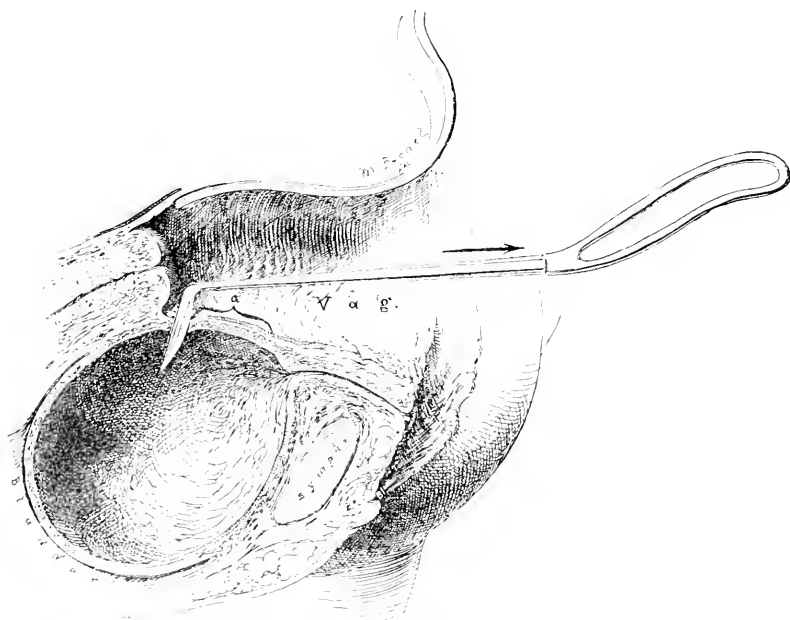


FIG. 2.—The patient in knee-chest posture. The posterior wall of the vagina is lifted up and a catheter is introduced, letting air into the bladder. The bladder is then opened by plunging the knife through the vesico-vaginal septum and drawing it toward the internal urethral orifice in the direction of the arrow over the line included in the bracket *a*.

There may be little or no bleeding attendant upon this operation, on account of the posture. With the patient still in the same position, the vesical mucosa is now caught and drawn through the incision and stitched to the vaginal mucosa on either side, so as to prevent the wound from healing too rapidly.

EXPLANATION OF PLATES.

FIG. 1.—The landmarks for median section of the bladder. The cervix at the vault of the vagina, the internal urethral orifice marked by a cross in the median line, and the positions of the areteral orifices marked by crosses on the right and left sides.

FIG. 3.—The size and appearance of the opening thus made is here shown. A stone may be extracted, tumors removed, or the bladder curetted. If the opening is to be left for drainage, the vesical mucosa is drawn out and sutured in several places to the vaginal mucosa to prevent too rapid healing.

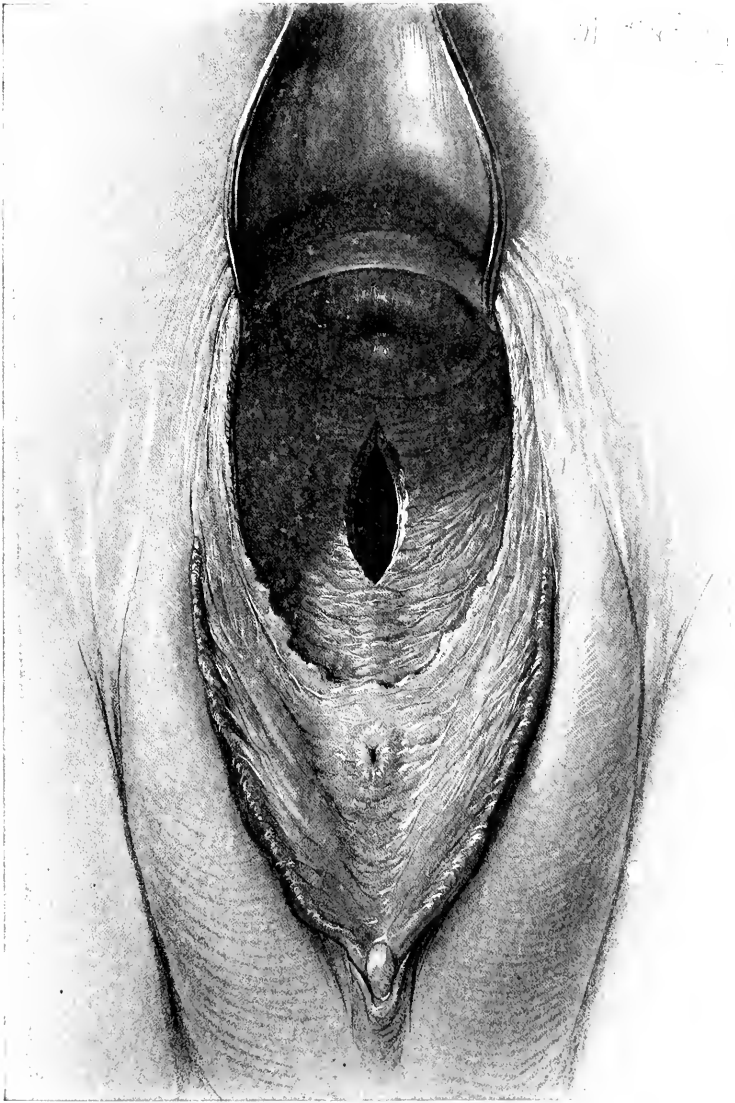


FIG. 3

OPENING AND DRAINING THE BLADDER IN WOMEN—*Kelly*.

This operation may be done without any anesthetic at all or by injecting a weak solution of cocaine into the vesico-vaginal septum.

When I desire to secure a drainage for a short time in a dependent position, and in cases of irritable urethra, I plunge the knife through the septum into the air-distended bladder, midway between cervix and urethra, making a hole about a centimetre in size, through which I introduce a mushroom catheter, which is left *in situ* for a week or ten days. As soon as the catheter is withdrawn the wound heals spontaneously. This method of drainage is also of great advantage in opera-

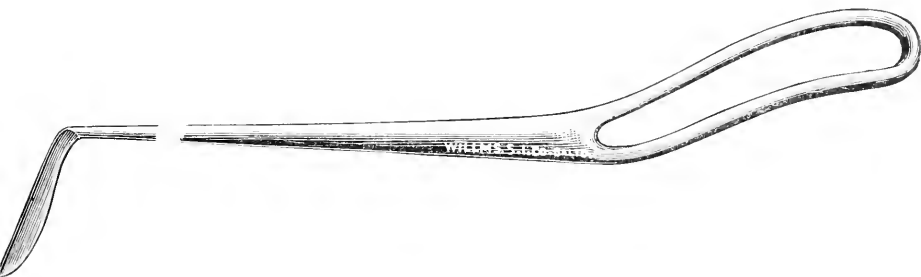


FIG. 4.

tions about the urethra. This posture and method of incising the vesico-vaginal septum are also superior to any other method of opening the bladder for the removal of a vesical calculus. As soon as the stone is removed, the incision may be closed up with the utmost ease and accuracy, with the patient still in the same position.

A METHOD OF OPERATING UPON INTRALIGAMENTOUS AND
SUBPERITONEAL FIBROIDS, BASED UPON THE
ESTABLISHMENT OF MOBILITY AND
SYMMETRY.

BY
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THE manner of removing an uncomplicated fibroid uterus, whether by the abdomen or by the vagina, is so safe a procedure, and the technique of the operation is so simple, that

nothing can be added by me to what has already been written upon the subject. The attention of surgeons has been directed to perfecting operations which will enable us to successfully remove those growths which present complications. My own particular study in this line has been directed to methods of operating upon those growths which lie beneath the peritoneum: between the folds of the broad ligament, beneath the peritoneum posterior to the uterus and over the rectum, and beneath the peritoneum between the uterus and bladder. The manner of operating where one or the other broad ligament is occupied by a fibroid nodule, as well as the application of this method in pus cases, has been described by me in the *Medical News*, December 1, 1894. The method was also spoken of October 9, 1894, in the paper which I read before the New York State Medical Association, and again in December, 1894, before the New York Obstetrical Society. The essence of that method was progressive ligation down the uncomplicated side of the fibroid, so as to secure the uterine artery on the complicated side from below, in this way avoiding all of those accidents which were found to accompany the old operation. In 1898 two private patients came to my service, both of whom presented the unusual anomaly of bilateral broad-ligament fibroids as well as other complications. Four years previously I began to perform vaginal hysterectomy in pus and fibroid cases, and certain principles governing that operation, as well as some of the advantages derived from the infrapubic method, I thought might be applied to the suprapubic operation for fibroid tumor.

Fibroid nodules which occupy the folds of the broad ligaments, or which rest between the bladder and the uterus, or lie posterior to the uterus beneath the peritoneum, produce a *fixity* of the organ which renders an approach to the arteries exceedingly difficult. More than this, they disturb the regional anatomy to such an extent that injury to important organs, such as the bladder, rectum, and ureters, is very easy. The indications, then, are to secure *mobility* and to produce *symmetry*, so that the anatomy of the pelvis will approach the normal. I need not go into an elaborate description of the distortion of the pelvic viscera which can be produced by these tumors. *Mobility* of the uterus is secured by performing hemisection exactly as we do when operating through the vagina, and, while doing this, *symmetry* is obtained with some elaboration of the technique.

I begin the operation, no matter where the tumors are situated, by splitting the uterus. As the section of the uterus is carried down I grasp its edges with toothed and serrated forceps in such a way as to control the bleeding, being careful to maintain a mid-direction; and if small fibroid nodules lie in the path of the section they are dug out; but if large nodules are encountered they are bisected, for to pass around such with the incision would be to depart from a settled line. If there be a nodule between the bladder and the cervix as the section proceeds down on the anterior face of the uterus, such a nodule will be exposed and can be dug out of its bed. If a nodule lies beneath the peritoneum and be retrouterine, as a rule it will lift the cervix and anterior face of the uterus high up. In such a case it may be necessary to make a complete hemisection of the uterus before exposing the fibres of the retrouterine nodule. Upon doing so, by means of blunt dissection it is freed from its capsular attachments and is extracted through the walls of the severed uterine body, either by means of the forceps mentioned or a fibroid corkscrew. Should the fixity of the uterus be due solely to a retrouterine fibroid or to one arising from the anterior surface of the uterus and posterior to the bladder, upon the removal of this the uterus will become movable, and the displacement of the rectum by the posterior nodule, or the distortion of the bladder by the anterior, will be done away with. But in case both broad ligaments, or even one, are occupied by a fibroid nodule, the fixity of the parts is maintained by that, and the displacement of the ureter and pelvic vessels constitutes a grave complication. In such cases, in addition to the antero-posterior median section of the uterus, when the uterine cavity is entered, I make a bilateral section in the case of bilateral intraligamentous tumor, or a unilateral incision in the case of the unilateral intraligamentous tumor, this incision passing out laterally through the uterine wall so as to strike the intraligamentous nodule. Upon exposing its fibres it is fixed by means of the fibroid corkscrew, and, while firm traction is made upon the tumor, it is pulled out of its capsule. In effecting this result no large vessels are severed and the dissection is carried on between the folds of the broad ligament, and therefore there is no risk of wounding the ureter or those large vessels which lie just beneath the peritoneum. The instant an intraligamentous nodule is removed the broad ligament collapses, and those subperitoneal structures, such as the ureter, which have

been displaced, recede toward their normal sites and the anatomy of the pelvis then becomes *symmetrical*. It will now be an easy matter to secure the vessels either by ligature or forceps and to remove the uterus. In these complicated and, fortunately, rare cases a mere hemisection of the uterus will not suffice to secure sufficient *mobility*, and neither will it secure that *symmetry* in regional anatomy which is so important if we wish to escape disagreeable surgical accidents. The bilateral section of the uterus cannot proceed from the fundus downward, because it will necessitate then an incision of the capsules of the intraligamentous nodules and thus carry with it all the disagreeable features of the old operation. But where an antero-posterior section is first made, the uterine cavity entered, and the side of this cavity split toward the intraligamentous nodule, the broad ligament can be unfolded after this lateral splitting so that the intraligamentous nodule can be removed. The degree of contraction which takes place in the capsules of these fibroids after they have been removed must be seen to be fully appreciated, and the return of the displaced organs to their normal sites is invariable. After the uterus has been hemisected and symmetry obtained the operation proceeds exactly as under ordinary circumstances, viz., serial ligation of the ovarian and uterine arteries, and removal of uterus as a whole, or in two pieces where the hemisection has been complete. It is important in these cases of retroperitoneal fibroid (and I class as retroperitoneal all those which lie beneath the peritoneum in front of the cervix, or between the folds of the broad ligament, or beneath the peritoneum posterior to the cervix) that no portion of the cervix be left to act as a bar against drainage through the vagina.

Miss L. W., age 26, patient of Dr. Abney, Texas: Bilateral broad-ligament fibroids; vesico-uterine fibroid; operation June 10, 1898; recovered. Mrs. W. E. D., age 32, patient of Dr. McIntosh, Georgia: Bilateral broad-ligament fibroids; right ovarian cyst; retrouterine fibroid; operation March 26, 1898; recovered. Twice before this operation I had applied the same procedure in other cases, but have not kept notes of them. This is the first general report I have made upon this subject, although the operation was mentioned at the meeting of the American Gynecological Society in 1900 and photographs of the specimens shown.

RECENT DEVELOPMENTS IN OUR KNOWLEDGE OF CANCER
OF THE UTERUS *

BY

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It is a generally accepted truth that carcinoma of any portion of the body spreads, as a rule, along the lymphatics. This is so universally considered a firmly established rule that it has become the guiding principle in almost all operations for carcinoma. The surgeon who would disregard pathology so far as to neglect the regionary lymphatics in any operation for carcinoma of the breast, the lip, the tongue, the vulva, the penis, would lay himself open to very general criticism and would be thought to jeopardize the lives of his patients even more than his reputation. In recent years the lymphatic involvement in cancer of the intestinal tract has justly received similar attention, and it is advised by the best authorities to remove the lymphatics wherever possible with the cancer.

If we turn to the uterus, the organ which, according to the largest statistics, is the primary seat of the disease in about one-third of all cases of cancer, we are confronted with a most remarkable condition of affairs with regard to the lymphatic involvement. Up to 1895 it was taught in all text books that involvement of the lymphatic glands in cancer of the uterus was, firstly, altogether rare, and, secondly, never, or hardly ever, to be found as long as the case was at all operable. It was well enough known that cancer of the uterus progresses along the lymphatic vessels in the uterus as well as in the broad ligaments and the appendages. But its spread to the regionary lymphatic glands was either denied absolutely or it was stated that it did not occur until the case had reached the final stages. Accordingly, the operations for cancer of the uterus practised prior to 1895 paid no attention whatever to the lymphatic glands.

When I published my new method of operation for cancer of the cervix in 1895,¹ I had as a working basis only the anatomical researches of Poirier and his predecessors, some ana-

*Read before the Illinois State Medical Society, May, 1901.

tomical and experimental researches of my own, and a meagre number of incomplete and unsatisfactory pathologic reports by Wagner, Blau, Dybowski, Winter, and others. Comparing these with the results of the so-called radical operations for cancer of the cervix as practised before 1895, I arrived at the conclusion that it must be possible to improve the efficiency of these operations by extending the extirpation of tissues not only to the ligaments of the uterus, but even to the regionary lymphatics.

In the six years which have elapsed since my first paper, quite a literature on this extension of the operation for cancer of the cervix has sprung up, and almost every issue of the most prominent scientific journals brings new articles bearing on this question. The technique of the operation has so far received the greatest attention, and numerous important and unimportant modifications have been recommended and rejected. The operation has been ridiculed, praised, and condemned. One who first shrugged his shoulders when the operation was mentioned to him has subsequently become its most ardent advocate; another, who at first would have liked to be its godfather, has abandoned it. In short, there has been the same process of evolution through which every new idea has to pass while it is struggling for recognition.

I am not going to speak to you about the operative details. The operation is not one for the general practitioner, not even for the occasional surgeon who does his ten or fifteen laparatomies a year. The operation is the most difficult and extensive one that can be done in the whole domain of gynecology, and will for some time to come belong to the specialist with a fully-equipped hospital and well-trained assistants. Therefore I shall not discuss any operative niceties, but I shall give you a short review of the advance in our knowledge of cancer of the uterus as it has been gained by the hard work of the apostles of this operation.

I have had experienced practitioners tell me again and again: "What is the use of our making an early diagnosis and having the cases operated upon immediately? They recur anyhow!" Such statements from the matter-of-fact practitioners show a widespread feeling of hopelessness in the profession. But our recent researches promise some comfort, because they show the reason why in so many cases cancer recurs and how much we can do toward the prevention of the recurrence. Do not believe, please, that we can now cure all cases that

hitherto have been considered hopeless, inoperable. That is not the case by any means. The advance which has been made is only in the line of improvement of the prognosis in early cases, and does not relieve you by any means of the imperative duty of making a timely diagnosis.

I have to restrict my discussion to cancer of the cervix and the glandular involvement accompanying it, because we know almost nothing of the glandular involvement in cancer of the body.

The anatomy of the lymphatic glands which drain the cervix uteri has in recent years been worked out by Poirier, Peiser,² and Bruhns,³ the three authors agreeing on the main points. The glands which we have to consider are located in the broad ligaments, along the internal, external, and common iliac vessels, over the obturator foramen, and on the anterior aspect of the sacral bone. Before 1895 there was practically no pathology of these glands. Since then an unexpected wealth of morbid conditions of these glands has been revealed to us, and questions of the greatest theoretical as well as practical importance have been raised. The statements which I am going to submit here are the results partly of my own work^{4,5} and partly of that of Wertheim,⁶ Broese,⁷ Von Franqué,⁸ Wuelfing,⁹ Cullen,¹⁰ König,¹¹ and Funke.¹²

It is not always an easy task to find cancer in the glands. Where the entire gland is not involved it is often impossible to tell with the naked eye where to look for cancer, and nothing remains but to examine series of sections. In order to make absolutely sure that there is no cancer, it is absolutely necessary to cut all the glands in complete series and to look through all of them. This means a very considerable amount of work. In one of my cases I had to look through seven hundred sections before I found one with cancer. A good many investigators did not go to so much trouble, and their results are therefore useless if they were negative (as, for instance, those of König and Von Franqué). Again, where, as some operators have done, only one or two glands have been removed and found free from cancer, this does not prove anything for our discussion (Broese's case, two of Von Franqué's cases, some of Wertheim's). The size of the glands, their hardness, their color may be suggestive, but they are never full evidence. Enlarged glands may not contain any cancer, and apparently normal-sized glands may be full of cancer nests.

Cancer has been found in the glands by myself, Wertheim, Cullen, Funke (the latter gives no detailed microscopic report). Each one of us has one or several cases where the glands were found carcinomatous, though the uterus was so freely movable that the case before 1895 would have been considered a very hopeful one after vaginal hysterectomy.

The carcinoma found in the glands is a faithful reproduction of the original carcinoma in the uterus—that is to say, it is squamous-cell carcinoma where the carcinoma of the cervix is a squamous-cell carcinoma, and it is of the columnar type in the glands where the carcinoma of the cervix is of that type. Where the carcinoma originates in the body of the uterus and extends downward so as to involve the cervix, metastases of the type of the cancer of the body occur in the glands which drain the cervix, as in a case described by Cullen. Where carcinoma of the body is limited to the body, the glands draining the cervix may be free, and were found so in a case of mine.

The cancerous lymphatic glands may break down in their centre and then contain a grumous mass. This mass may become purulent, and thereby an abscess may be formed surrounded by a shell of carcinomatous gland tissue. This abscess may burst into the peritoneal cavity and give rise to peritonitis and death of the patient after the patient has recovered from the hysterectomy (as in a case reported by Wertheim).

Besides the cancer other epithelial formations may be found in the lymphatic glands which were totally unknown before I described the first case of this kind.⁴ The observation has since been repeated by Wuelfing and Von Franqué. In cases of squamous epithelium cancer of the cervix, epithelial ducts with typical columnar epithelium occurred in the lymphatic glands, which, in Wuelfing's and my case, were associated with adenomyoma of the uterine horns. I therefore offered as an explanation that remnants of the Wolffian body, which had led to the formation of the adenomyomata according to Recklinghausen's¹³ theory, were also responsible for these ducts in the lymphatic glands. Von Franqué reports a similar case. Wertheim made the same observation, but believes that in his case the ducts originated in the columnar epithelium carcinoma of the cervix. As Wuelfing's, Von Franqué's, and my own cases were of squamous epithelium cancer (my case presents beautiful and typical epithelial pearls in the cervix), this ex-

planation of Wertheim's cannot hold good for these three cases.

Enlargement of the glands has been observed by a number of investigators without the presence of cancer in the glands. In these cases the enlargement was, as a rule, associated with a septic ulcerative process in the cancerous growth and presented under the microscope the appearance of a hyperplastic process, but it is not necessarily always present where there is ulceration of the cancerous growth.

Other important data are the following:

Glands have been found cancerous when they were no larger than normal glands. Cullen reports and gives a picture of a gland not larger than five millimetres in diameter, but containing cancer.

Large glands may contain only hyperplastic glandular tissue or cancerous tissue, or a mixture of both.

The size of the cancer in the cervix is in no regular proportion to the size of the affected glands. In one of my cases the cancer of the vaginal portion was not larger than my thumbnail, but the largest cancerous gland was larger than a pigeon's egg.

The cancerous glands are sometimes firmly adherent to the large blood vessels, especially the veins, and the adhesions may be so firm that in the attempt to remove them the blood vessel is torn into, as has happened to Wertheim, Funke, and myself. This firm attachment of the glands to the blood vessels is probably due to cancerous invasion of the vessels.

What used to be diagnosed as infiltration of the broad ligaments may simply be a large cancerous gland in the broad ligament, as in one of my cases.

Neither the number nor the size of the involved glands can be predicted from the size of the cancer in the cervix.

The majority of the glands cannot be felt without opening the abdomen, even if they are involved. Even after the abdomen is opened it is necessary to split the peritoneum over the large blood vessels and to dissect these free in order to see and remove all of the glands. In view of the fact that small and soft glands have been found to contain cancer, the statements of some authors to the effect that there were no glands or that none could be felt are worthless.

The percentage of cases in which glands are involved cannot yet be stated definitely.

I have made this review as short as possible and have not

entered into any details, but I think sufficient has been said to enable me to draw a few very conservative conclusions:

1. Glandular involvement in cancer of the cervix does not materially differ from that in cancer in other regions of the body.

2. An operation for cancer of the uterus in which cancerous glands are removed gives the patient an increased chance of complete cure.

3. Extensive glandular involvement contraindicates all but palliative treatment.

4. The necessity of early diagnosis of cancer is not done away with by the extended operation, but must be emphasized again and again.

100 STATE STREET.

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PREGNANCIES FOLLOWING VENTRAL FIXATIONS, ONE ENDING IN RUPTURE AND ONE IN CESAREAN SECTION.¹

BY

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(With fourteen illustrations.)

ALTHOUGH pregnancy following ventral fixation and suspension has been reported in some hundreds of cases, the two complications here presented are sufficiently rare to warrant publication. Cesarean section had been done eight times up to 1889, and rupture of the uterus is not common.

¹ Read before the New York Obstetrical Society, April 9, 1900.

The second case presents four points of interest:

1. The uterus was more displaced, more upside-down, so to speak, with a cervix located higher above the promontory than in any case I can find reported—namely, at the third lumbar vertebra.

2. The stretching or distension was not, as usual, at the expense of the posterior wall chiefly, helped by contributions from the lateral walls, with a squat uterus as a result, but was largely from the right lateral wall.

3. Failure to recognize this new condition—lateral distension

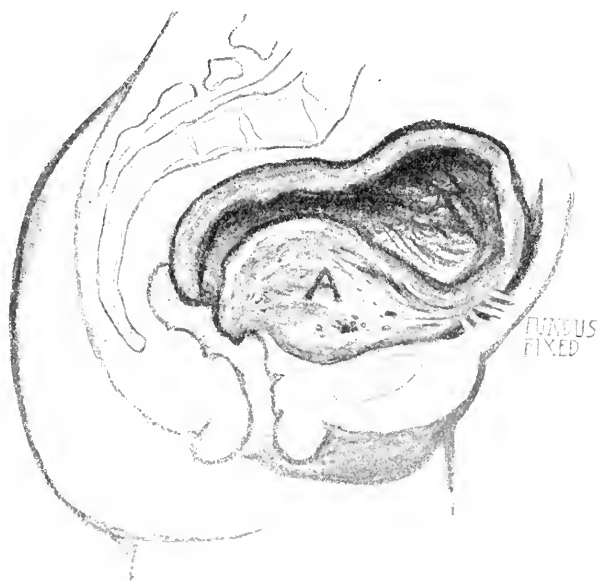


FIG. 1.—Uterus three weeks after delivery. The adhesion at the fundus is seen. Thinning of the posterior wall and huge thickening of the anterior wall (at A) are still present. Diagram.

—prevented me from considering liberation of the adhesion in the seventh month.

4. Ventral fixation had taken place, though suspension had been attempted.

Ventral Fixation for Prolapse; Rupture of Uterus; Death.
—L. H., 35, German, married eight years, had had four children; the labors were easy, but severe laceration had occurred with a complete prolapse of the uterus and vagina. In February, 1899, a famous gynecologist did “ventral fixation,

intra-abdominal shortening of the round ligaments, and vaginal plastics." At term a tumor was said to obstruct delivery, and version and perhaps embryotomy were done. After three weeks of sepsis she was sent in to my service at Brooklyn Hospital in a sinking condition. Peritonitis with extensive exudate surrounded a right-sided rent running from external os to cornu, splitting the broad ligament into the peritoneal cavity, four fingers wide. The uterine globe extended half-way to the navel, the fundus was fixed to a scar above the pubes, and the posterior wall thin and relaxed. The anterior wall was two inches thick and ran from the top of the scar half-way back across the pelvis, and almost from side to side even at this late date. The patient never rallied.

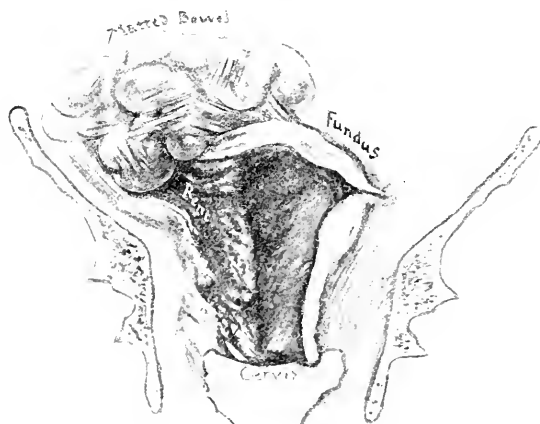


FIG. 2.—Rupture of the uterus after delivery. The entire right lateral wall has given way. Diagram.

Cesarean Section for Ventral Fixation of Uterus; Death.

—A delicate patient, weighing less than one hundred pounds, had severe dysmenorrhea until after an operation by a celebrated gynecologist four years ago. She says that a one-inch cyst was removed from the left ovary and that her womb was "tacked up in place." She was married in October, 1899, in her thirty-third year, and last menstruated on the 1st of January, 1900. Nausea began in February and lasted throughout. March 1 there occurred a threat of miscarriage, with a marked flow of three days. Constipation, with somewhat persistent intestinal toxemia, troubled her throughout her pregnancy. The kidney action demanded constant stimulation, and attacks of headache were frequent. In August I found the pelvic

measurements ample and the fetus in the right sacro-anterior

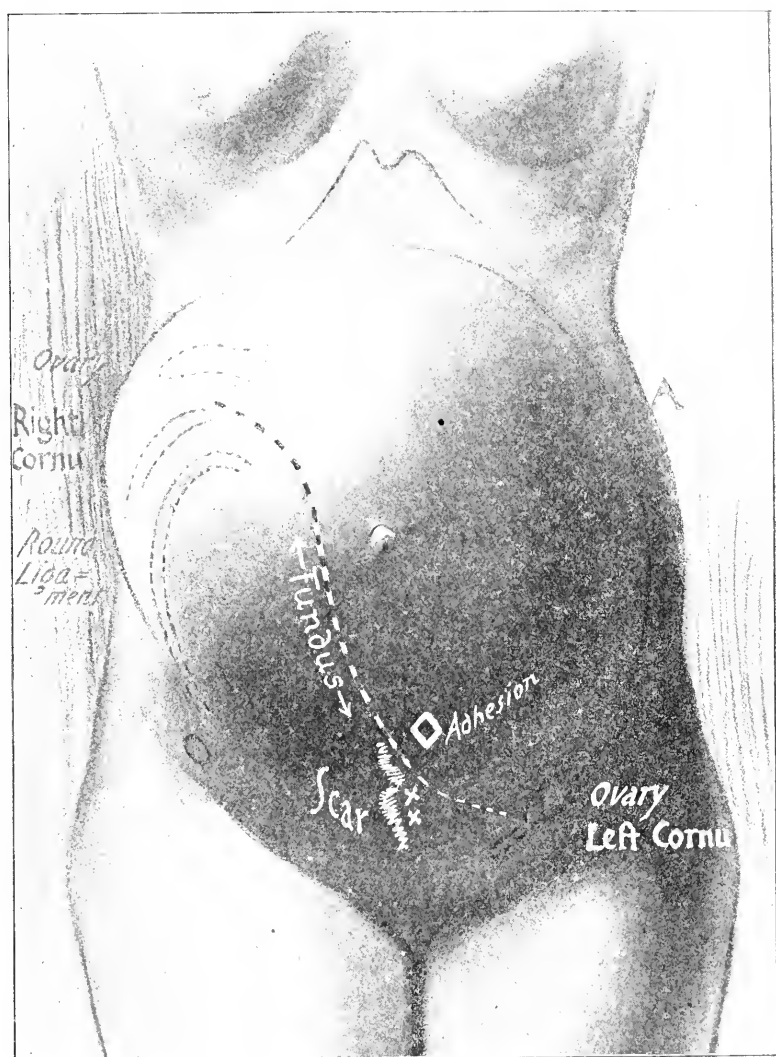


FIG. 3.—Ventral fixation, twin pregnancy at term. The right horn of the uterus is shown by the location of the ovary and tube; the left horn, supposed to be at A on the same level, was found, under anesthesia, near Poupart's ligament. The dotted line is not the incision, but follows the summit of the anatomical fundus from one cornu to the other. The children lay in a bay window made entirely out of the lateral and posterior wall of the uterus. At the crosses stitches could be felt through the abdominal wall.

position, of normal size. At the right side of the fetus, and a little anterior to its highest point, the ovary could be detected;

further forward the tube, and still further the round ligament, swept in the shape of a crescent from the middle of Poupart's ligament upward and forward. The distance between the ovary and upper end of the round ligament showed that the cornu was stretched. The right horn being thus thrown forward, the left horn was searched for at the same level on the posterior and opposite side of the uterus; but such was the sensibility of this neurotic patient that anything like a satis-

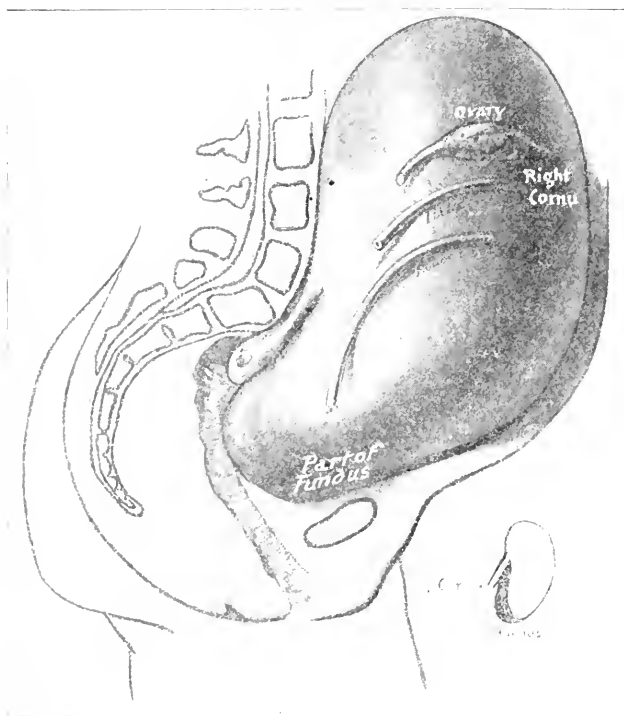


FIG. 4.—Diagram of side of uterus, showing expansion of cornu and violent anteversion of anterior uterine wall. The small outline shows the shape of the cavity and the elongation or supravaginal hypertrophy of the cervix.

factory examination was impossible. It was therefore supposed, very naturally, that one end of the suspensory ligament which bowed this fundus forward was attached below at the scar above the pubes, and the other end above, at or behind the level of the tube. The portio vaginalis was in front of the promontory. When she had run beyond term, with slight labor pains at times during several days, I anesthetized her, to make a complete examination and to induce labor by dilating

and dragging the cervix forward. The right horn of the uterus was, as stated, high and to the front. *The left ovary and round ligament*, however, instead of being at the same level, lay along *Poupart's ligament*. The external os was crowded against the middle of the first sacral vertebra. A strong double tenaculum was made fast in the anterior lip to pull it downward, and the longest finger was passed into the cervical canal. Instead of the usual length of four centimetres, I could pass my finger nearly ten centimetres (four inches) into the cervical canal. Though unable to reach an internal os, the

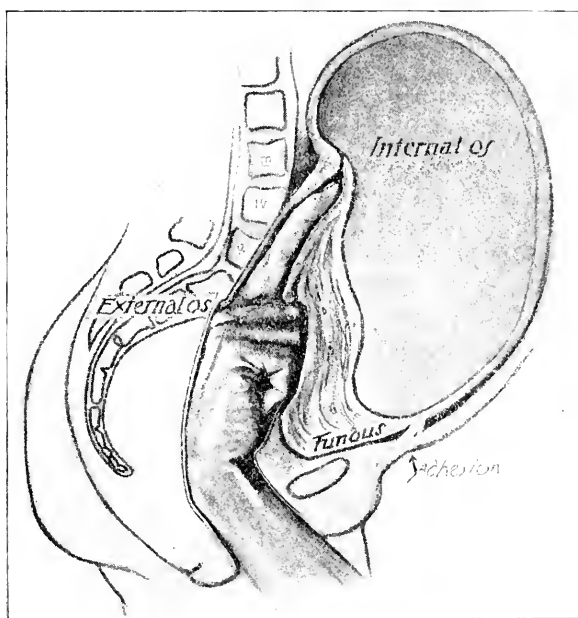


FIG. 5.—Antero-posterior section, showing the location of the external os. The thickness of the anterior uterine wall is shown, and the length of the cervical canal.

finger tip passed to the first lumbar vertebra. The uterine wall facing downward into the pelvis was at least four centimetres (one and one-half inches) thick. One-half hour of persistent effort with the strongest downward traction, the fist in the vagina and the finger in the cervix, failed to reach or stretch or bring forward the internal os. I worked to the danger point of rupture. No bag would stay within the cervical canal to stretch it. Prof. Jewett saw her in consultation. On the same day, no active pains intervening, a Cesarean

section was done at Brooklyn Hospital. The first child was delivered within forty-five, the second child within seventy seconds. The broad ligaments were seized by Dr. Westbrook. The first child lay in a right sacral position with its placenta to the front, both completely covering the second child, which the tension and the sensitiveness of the uterine wall had prevented us from detecting. The second child was in a right occipital position with its placenta posterior. There was moderately free blood loss from the slackly contracting uterus, and some shock.

As the incision in the uterus lay in the long axis of the mother's trunk, it ran from behind the right horn diagonally across the fundus to the front of the left horn, the major part of it being necessarily on the rear wall of the uterus. The patient was put to bed in fair condition, but died of late shock within twelve hours. There was no internal bleeding, as demonstrated by the removal of the upper abdominal stitch. The girl weighed 5 pounds 10 ounces, the boy 5 pounds 4 ounces, respectively 18 and 19 inches in length. They have gained nearly an ounce a day.

Dorland¹ and Noble advise induction of labor (at the eighth month) whenever a study of the case threatens difficult labor. From the sixth or seventh month examinations should be made to ascertain whether the cervix "is dragged up out of the pelvis, whether or not the anterior wall constitutes a tumor at the brim of the pelvis." I may say that it is not easy to determine the thickness of this "tumor," as it is rounded, flattened, and spread over the presenting pole. This case teaches also that the location of the external os can give little clue to a supravaginal hypertrophy or distortion of the cervix, and therefore cannot gauge the location of the internal os.

Bidone opened the abdomen and freed the adhesion when delivery seemed impossible, whereupon labor went on easily and both mother and child recovered. Had I anesthetized my sensitive patient earlier than term and determined the excessive and unusual deformity, this operation might have brought about a different ending. In view of the good statistics of cases let alone, such an operation is only justifiable in the worst cases.

Here manual dilatation, diligently tried, was unavailing; therefore the forceps, which has ended thirteen of these cases, was out of the question, or version, which has brought the

¹ AMERICAN JOURNAL OF OBSTETRICS, 1897, p. 121.

child out in at least thirteen instances. In my first case forceps and version, in the hands of general practitioners, ruptured the uterus. Enormous difficulties may present, even to skilled operators, for the "tumor" here found, the thickened anterior wall, is like a fibroid in the cervix in its obstruction to the entering hand or the departing head. Guerard, Mackenrodt, and Noble have seen rupture from the excessive thinning of the posterior wall, which may give way near the site of the adhesion. Noble was obliged to do a Porro operation. For vaginal incision of the thickened wall, as proposed by Ruhl, it will be seen that there was no possible opportunity.

Cesarean section has been done eight times, by Gubaroff, Poltowitz, W. Miller, Pinzani, and by Bidone three times, twice on one patient.

Noble,¹ in 1896, collected 808 American operations of suspension (and fixation) in which at least one ovary remained. Pregnancy followed in 56 cases, nearly 7 per cent. Four abortions are credited to it, and 3 deaths, of which but one can be charged to fixation. To this must be added a fourth—Kelly's case, a fixation, before the days of suspension.² The mortality is 4 per cent, and to judge from this series—three forceps deliveries, two retained placenta, one induced labor on account of uncontrollable vomiting, a tendency to inertia—these are good results. Kelly had 13 smooth deliveries out of 14 term labors. Gordon's table of foreign cases³ covers 175 pregnancies, with abortions, 10 per cent; premature labors, 4 per cent; artificial extractions, 2 cases; forceps delivery, 8 cases; versions, 8; Cesarean sections, 3; death from labor, 2½ per cent. Unhappily we have no list separating the more dangerous operation, fixation, from the safer operation, suspension. That a suspending ligament may stretch to considerable length is shown by one case of Kelly's⁴—wherein, after labor, a finger passed into the umbilical ring could study the ligament—or by the case of Bovée.

Band or Ligament Stretched by Enlarging Pregnant Uterus.—As bearing on the matter of ventral suspension and the stretching of the new suspensory ligament made at that operation and running from the fundus to the *anterior* abdominal wall, I present a series of diagrams from a case of

¹ Transactions American Gynecological Society, 1896, p. 247.

² Operative Gynecology, 1898, chap. xxv.

³ Transactions American Gynecological Society, 1896, p. 263.

⁴ Operative Gynecology, vol. ii., chap. xxv.

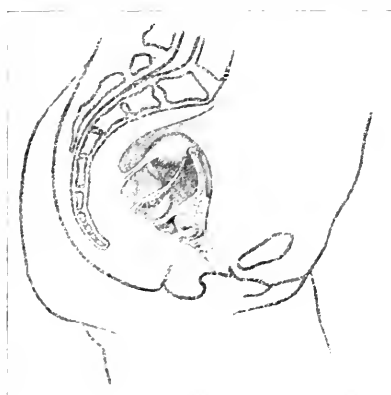


FIG. 6.

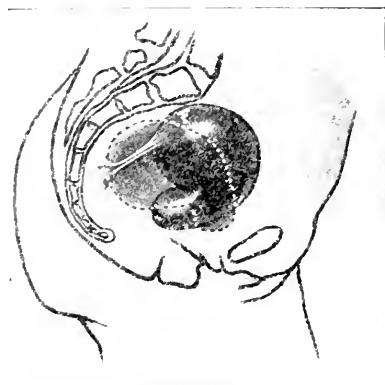


FIG. 7.



FIG. 8.

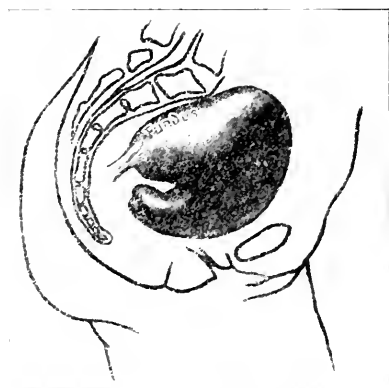


FIG. 9.

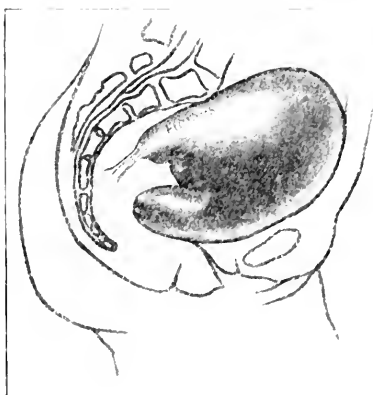


FIG. 10.

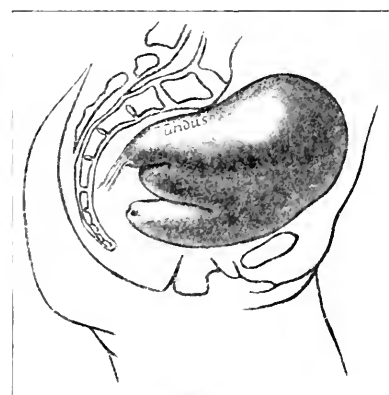


FIG. 11.

FIGS. 6 TO 11.—The stretching of a posterior ligament during pregnancy, and the behavior of the fixed fundus. The fundus remains at the same location, while the anterior wall of the uterus thins and enlarges.

adherent retroflexion which was carefully studied. This case had a slender ligament on the *opposite* side of the uterus. The patient was a delicate little woman of 26, who had been



FIG. 12.—The true fundus (and ovary) still beneath promontory in advanced pregnancy (same case as Figs. 6-11).

badly treated with pessaries for fifteen months, and had ulceration of the vaginal fornix and a peritonitis in the cul-

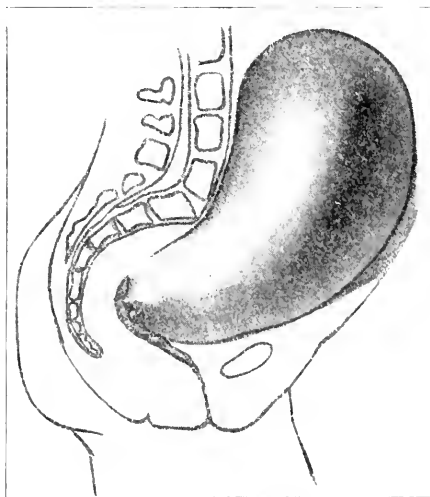


FIG. 13.—The fundus has freed itself by the breaking of the ligament.

de-sac. A year or more later she became pregnant. The lax and attenuated abdominal wall permitted a perfect study of the contortions of the uterus.

I draw attention to the way in which the uterus drags on the ligament which fastens the fundus to the cul-de-sac, to the development of the fetus in a bay window of the anterior wall, and to the final result, wherein I show the uterus in good position at term. I know positively that the ligament was ultimately torn away from the fundus, because after delivery the uterus stayed forward easily, and because, at the laparotomy ten years later, I found in the middle of the rear wall of the body of the uterus the old depressed scar of that adhesion.

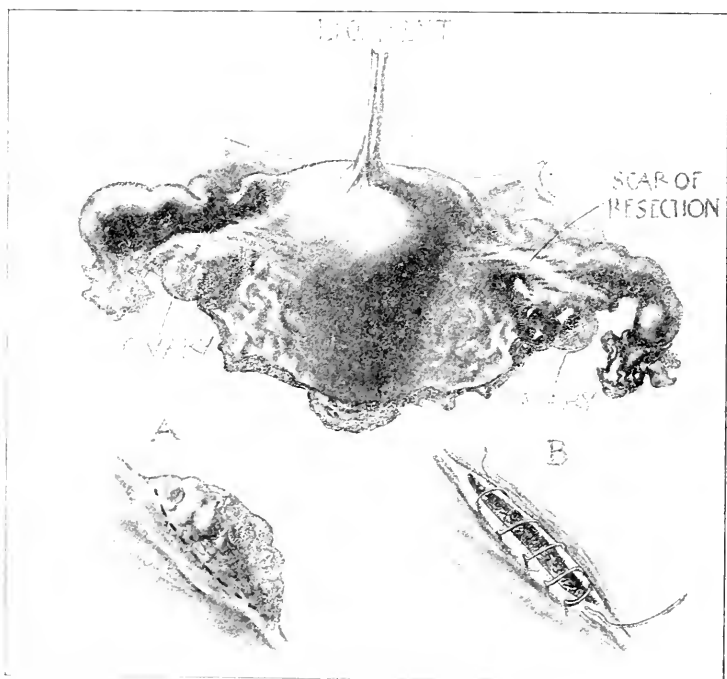


FIG. 14.—A typical suspensory ligament six months after operation. Subsequent to resection of the ovaries (A and B), the return of the cystic disease has been rapid.

As a matter of comparison, I show also a picture of a ligament as seen six months after operation. The patient was a neurasthenic with an aggravated retroflexion of an enlarged uterus, and microcystic ovaries. As she was but 22, I resected the ovaries at the first operation, at Brooklyn Hospital, March 28, 1900, and sutured the uterus to the abdominal peritoneum with three stitches of chromicized gut. October 7, 1900, I did abdominal hysterectomy for persistent pelvic pain. The cause was evident. The strip of apparently sound ovary, one-half centimetre in width, left on each side had grown to a size greater

than that of a normal ovary. Moreover, the broad ligaments presented very large varicose veins. These suspensory ligaments are sufficient to hold the fundus forward, but readily pull out in pregnancy. This ligament is 4 centimetres long and averages 5 millimetres in diameter.

I have seen the ligaments suspending the uterus in 5 cases where the abdomen had to be reopened. In one a 6-inch ligament allowed the fundus to drop back to the mid-sacrum. In four it did its work well.

Of 37 of my cases of suspension whose later histories I have searched, among 14 women with at least one ovary and living husbands I find 4 pregnancies. The first is of a highly nervous woman of 36, whose retroflexion was corrected by suspension after curetting, repair of cervix and perineum, and anterior colporrhaphy. The cystic left ovary was removed and a tiny fragment of the right left. A year later I had to empty her uterus for pernicious vomiting at the second month. The ligament permitted a three-inch play of the fundus, and the suspension cannot be credited with the need of abortion. I use two chromic gut sutures through uterine wall and abdominal peritoneum.

The second pregnancy is after suspension for fixed retroversion, in a woman of 29 years, who had had one child. Both of Mrs. A.'s ovaries were resected. Pregnancy began three and one-half months after operation. Now, at her seventh month, the abdominal wall presents two prominences, one above and one below the scar, and the round ligaments indicate that the fundus is bowed forward, yet the cervix is not high nor is the anterior wall thickened within the pelvis.

Mrs. L., pus tube and ovary removed August, 1899; uterus suspended; drainage sinus for two months; delivery June, 1900; labor prolonged, not abnormal; first child.

Mrs. H., 38, had one ovary resected and one removed. She became pregnant within six months and miscarried. Her ligament is long—if anything, too long—and her fundus in front of the promontory. She is grievously overworked.

Dr. F. H. Stuart permits me to present a case delivered in his service at Brooklyn Hospital. Her first labor had been severe, and after the second her "womb came out." A ventral operation was done in Chicago. The next labor was at the seventh month and very painful. In October, 1898, she had a normal four-hour labor, forty minutes in the second stage, and with no appearance of uterine deformity. The pelvis was large.

I know of an unpublished ventral fixation (or suspension) of Dr. George R. Fowler's, operated on in 1897 by his method of passing the dissected urachus through the fundus and then sewing it in place again. Over a year later she aborted at the third month, and the fundus is said to have been fast to the abdominal wall. But Dr. A. C. Jacobsen will publish this year in the *Brooklyn Medical Journal* another case of Dr. Fowler's which was delivered at term smoothly, and Dr. J. F. Haller has delivered two others without complications.

To previous tables should be added, therefore:

1 ventral fixation, full-term labor, ruptured uterus, sepsis, death.

1 ventral fixation, Cesarean section at term, death.

1 ventral suspension, seventh-month labor, difficult; 1 full-term labor, normal—same patient.

1 ventral suspension, prolonged labor at term.

1 ventral suspension, seventh-month pregnancy, uterus bowed forward, cervix not displaced.

1 ventral suspension, instrumental abortion for pernicious vomiting at second month.

4 urachus suspensions, with 1 abortion and 3 facile deliveries at term.

1 ventral suspension, spontaneous abortion, second month.

Personally I have seen, even in neurotic and hyperesthetic patients, such comfortable pregnancies and labors following Alexander operation that I look with favor on shortening the round ligaments in young women with otherwise intractable, uncomplicated, non-adherent retroflexions, nor do I hesitate to resect ovaries and tubes through the inguinal ring.

168 CLINTON STREET,

THE VALUE OF HEGAR'S SIGN IN DIFFERENTIATING PREGNANCY FROM UTERINE MYOMA.¹

BY

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I THINK we have all seen several cases of myoma of the uterus in which, by physical examination alone, it was scarcely possible to tell whether pregnancy existed or not. Such

¹ Read before the Section on Gynecology, College of Physicians of Philadelphia, April 18, 1901.

myomata are usually single, partly interstitial and partly sub-mucous, containing comparatively little fibrous tissue, so that they feel soft, smooth, and rounded to the touch, and of a size resembling a uterus pregnant from the second to the fifth or sixth month. If, besides the enlargement of the uterus, other signs of pregnancy are wanting, or so illy developed as to be unreliable, and your patient has intentionally or unintentionally misled you in her symptoms and previous history, can you from a manual examination alone differentiate these two conditions? It is held by many that the only positive sign of pregnancy is the fetal heart sounds; but these sounds do not develop until the sixteenth or eighteenth week, and in some cases cannot be demonstrated until a much later period. Must we then, in these doubtful cases in a hospital service, always wait until such time as we can positively say that the fetal heart sounds are present, or that owing to their absence pregnancy cannot exist? To do so would possibly save us from error; but it is often very inconvenient or impossible for the poor to wait, and your reputation and the institution's suffer if the patient leaves and applies elsewhere for treatment. Under these conditions many patients have been operated upon where strict prudence should have cautioned us to wait. Whatever the causes may be which lead us to believe we are dealing with a fibromyoma, how changed are our thoughts when we open an abdomen and see before us a womb resembling in appearance and touch a pregnancy! I will not attempt to depict these thoughts, for they are of no value; but I have seen surgeons proceed to amputate the uterus under these conditions, and then have the specimen hurriedly removed from the operating room, fearing that the products of conception might appear on opening the uterus. It is of such cases that I wish to speak, where even after opening the abdomen there is a doubt in the mind whether the uterine enlargement is physiological or pathological, and to discuss with you in this connection the value of Hegar's sign of pregnancy.

The vaginal portion of the cervix cannot positively be relied on for a differential diagnosis. This is notably softened in pregnancy as a result of the increased blood supply, and perhaps also owing to some edema of the part. But the same condition may also be present in a rapidly growing myoma, particularly if metritis be present. Again, as the result of injury at previous labors, scar tissue may be so prominent in

the cervix that no appreciable softening will take place during the early months of pregnancy. In the supravaginal portion of the cervix, however, we have a tissue on which more reliance may be placed, and one in which changes in the consistence, some authorities hold, denote but one condition, namely pregnancy. As I have had no experience in obstetrics, my remarks on this part of the subject are gathered entirely from books. Hegar's sign depends upon a marked softening and compressibility of the isthmus, that portion of the uterus which is in part the lower extremity of the corpus and in part the upper of the cervix. This segment of the uterus becomes soft, thin, yielding, and elastic, while the fundus above and the cervix below remain comparatively firm. When well developed it seems almost as if the body of the uterus and the cervix were two separate organs. This compressibility may be elicited by a bimanual examination in one of three ways: If the fundus is anterior, the finger tips on the abdomen are made to sink in deeply behind the uterus, while the finger in the vagina is pressed far back on the upper surface of the cervix. When the fundus is posterior, the hand on the abdomen is pressed deeply in above the pubis, while the finger in the vagina is pushed backward and upward on the lower surface of the cervix; or, with the forefinger in the rectum and the thumb in the vagina, the hand on the abdomen presses the uterus down between the thumb and index finger. But the presence of Hegar's sign cannot always be proved or disproved, owing to large deposits of fat or rigid abdominal walls. If it is present, is it a positive sign of pregnancy? C. Reinl,¹ one of Hegar's assistants, considers it as such, and states that it does not occur in the presence of tumors. P. Compes,² another assistant, says the sign is positive, but a little later in the same article he says, "When present, pregnancy is likely in the highest degree," and that he has never observed it in any pathological condition of the uterus. He explains this compressibility by saying that the lower uterine segment is the thinnest portion of the uterus, and that when the womb is gravid this portion becomes soft, swollen, and edematous—inferring that the changes in the blood supply and pressure are the causes. If this is so, the sign is of no more value than a soft vaginal cervix, as it depends upon the same conditions for its existence. Hirst states that the sign is not always ap-

¹ *Präger med. Woch.*, June 25, 1884, No. 26, p. 253.

² *Berliner klin. Woch.*, September 21, 1885, No. 38, p. 608.

preciable in pregnancy, and that it may also be elicited in a uterus softened by congestion, inflammation, or the presence of fluid (hydro- and hematometra). Lusk thought that it was not conclusive, as its absence has been observed in early pregnancy, and a condition closely simulating it has been noticed in certain morbid states of the non-pregnant uterus. He then gives a reference where presumably these cases are noted, but I am unable to find a single case in the article referred to.

On the other hand, A. L. Galabin says that the compressibility is due to the walls of the fundus becoming expanded and softened while the ovum does not yet fully fill its cavity, and R. L. Dickinson¹ accounts for it by the enormously thickened mucosa containing many dilated and irregular blood sinuses which reach their maximum development at the end of the second month, and the softness and pulpiness of the decidua. If these latter theories be true, the sign can only occur in the presence of the products of conception, and when it is demonstrable it should be a pathognomonic symptom of pregnancy.

We have, then, eminent authorities differing on the cause of this sign and on its value as a diagnostic symptom. Which is the correct view my experience in no way permits me to judge. However, I am unable to find reported a case of myoma of the uterus in which this sign was noted as present, nor has such a case occurred in my own practice. I have on three occasions operated for myoma of the uterus where, after the abdomen was opened, the womb resembled pregnancy in appearance, size, and consistence, except that the compressibility of the lower uterine segment was absent, and the absence of this sign permitted me to proceed with the operation with the utmost confidence, and I may add that that confidence has so far not been misplaced.

If Hegar's sign has value, it is of the highest importance in differentiating these two conditions; if it has not, my good fortune has been far superior to my knowledge.

¹ Practice of Obstetrics by American Authors, 1899, p. 143.

CASE OF GELATINOUS DISEASE OF THE PERITONEUM, OR
PSEUDOMYXOMATOUS PERITONITIS.¹

BY

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THE three quart jars of clear, amber-colored jelly which are here shown are the portions which were saved out of more than a gallon of the same material which was removed about three weeks ago from a Mrs. W., 52 years old, of Plattsburg, kindly referred to me by Dr. Fairbanks, of Chazy, N. Y. It may be noticed that part of the jelly is liquid now, but it was not so when put in the jars; the liquefaction is due to the action of bacteria, which found in it a very favorable culture medium.

The history of the case was, very briefly, as follows: She began to menstruate at 14, normal; married at 22; two children, last one twenty-six years ago; three miscarriages, last one thirteen years ago; menopause at 48; bowels always constipated. Her first labor was a very hard one, with instruments, and she was told fifteen years ago that her womb was torn. She has never had much white or yellow discharge.

Present Illness.—About two months ago she noticed that she was getting very large, as big as a six-months pregnancy. She consulted Dr. Fairbanks, who made a careful examination and told her that she had a large tumor, which he felt very distinctly at the time, and he advised her to have it removed. Before the examination she had not suffered any pain, but the day after it she was taken very ill with chills and sweating and great pain, and sent for the doctor to come to see her. He examined her again, but the large tumor had disappeared, and instead of it her abdomen was generally enlarged. He came to the conclusion that the tumor had ruptured, and he would have sent her in at once for operation, but had to wait two weeks until she had rallied from the prostration caused by the rupture of the tumor. As soon as she was fit to travel he sent her in to the Samaritan Hospital, Montreal.

On examination the uterus was found retroverted, and a

¹ Read before the Medico-Chirurgical Society of Montreal, May 10, 1901.

tumor the size of a large orange and tensely fluctuating was found on the right; and although the abdomen was somewhat distended, yet, owing to her emaciation, it was quite easy to palpate this tumor and to outline the uterus, but neither ovary could be felt. The cervix was badly lacerated, but the perineum was good. Percussion all over the abdomen showed diminished resonance in front and dulness at the sides, but there was no fluctuation. My diagnosis was an ovarian cyst, and I proposed to remove it by abdominal section and to restore the uterus to its proper place by ventrofixation. In order to make the cure more complete, I also decided to repair the lacerated cervix by an Emmet operation. The patient was therefore prepared by having several hot baths and was placed upon strychnine, one-thirtieth of a grain three times a day by the mouth, and on the following morning the operation was performed, Drs. Johnston and Smythe assisting me. On making an incision four inches long—that is to say, from umbilicus to pubis—into the peritoneal cavity, the following curious condition met our view. Nothing was to be seen but a yellow, transparent jelly, which appeared to fill the abdomen as though it had been poured in while warm and allowed to solidify, and had the identical appearance, as to consistence and color, with the shapes of jelly supplied by confectioners. Neither bowels nor pelvic organs could be seen until a pint or so had been removed, handful by handful at a time. Then, on endeavoring to find the ovarian tumor which I had felt before the operation, I found that what I had felt was simply a rather more solid mass of jelly than the rest, which I was able to lift out of the right half of Douglas' cul-de-sac, bringing with it the remains of a ruptured and very thin-walled cyst of the left ovary which was densely adherent to the back of the uterus. The more solid portion, representing the pedicle, was traced over to the left broad ligament and was removed after the left ovarian artery had been ligated. The right ovary was then found cirrhotic, and was removed in order to insure that there should be no return of the pain which the woman had felt in the right side, and which I was not certain was due to the left ovarian cyst. I then continued to remove handfuls of jelly from the abdomen, requiring the introduction of my arm up to the elbow in order to remove quantities of it from under the spleen and under the liver, during which process I had each of these organs as well as the gall bladder and right kidney in my hand. While removing the jelly we noticed a curious condition of the intestines,

which, although not roughened, were duller than normal, not having the natural glistening appearance, and they were covered by spots, varying from the size of a split pea to a bean, of a yellowish-white color, as though there was fatty degeneration of the muscular layer in spots; but the intestines did not seem any the worse for that, for, although they were unavoidably handled a great deal, they were not torn.

Although there was only a gallon of the jelly in the two basins, yet, owing to the great number of times that one had to introduce the hand, it took nearly an hour for this part of the operation, including the subsequent thorough washing-out of the cavity with sterilized salt solution, of which between two and three gallons were used. The first gallon floated out a great many pieces of jelly which had escaped removal by the hand; but by the time that the third gallon had been used the water came away perfectly clear. It was fortunate that during the whole of the operation there was almost no bleeding.

Twenty minutes were required for the opening of the abdomen and the closing of the incision and for the removal of the shreds of the cyst from the back of the uterus and the right broad ligament; the tumor was certainly the left ovary, which had migrated to the right side before it had burst. The raw surface on the back of the uterus required several stitches to stop the oozing, and then ventrofixation was performed. The patient made a very good recovery, the only anxiety I had at any time being during the first twenty-four hours, when her pulse kept at 130 and her temperature could not be induced to rise above 96° or 97° ; after that, however, the temperature rose, and the pulse fell to normal by the third day.

In several of my previous papers I have referred to the value of the condition of the omentum as a means of deciding the nature of the disease found in the pelvic organs, and when I had opened the abdomen and found this gelatinous material everywhere I feared that I had a case of general cancer of the peritoneum; so one of the first things I did after getting some of the jelly removed was to pass my hand up and bring down the omentum. To my great relief I found that it was long—extra long, in fact—while in all those cases in which the condition was cancerous I have found the omentum shrivelled up like a little fringe of burnt leather, only an inch long, hanging from the lower border of the liver. I was thus encouraged to form a favorable opinion of the case and to proceed with the cleaning-out of the cavity. This condition is known as

pseudomyxoma of the peritoneum and is very rare. I certainly have never seen any other case like it in the five hundred and more laparatomies that I have performed myself, nor in any of the hundred or so of others at which I have been present.

On looking up the literature, only two or three authors refer to it. Garrigues (page 620, third edition, 1900), in speaking of metastases, says "papillomatous cysts have a tendency to cause the production of small yellow nodules on the peritoneum. After removal of the tumor these may disappear or become innocuous by becoming calcified. Glandular and dermoid cysts are much less liable to form such metastases, except the glandular variety with gelatinous—that is, semi-solid—contents. When, in consequence of the rupture of the cyst before or during operation, part of the contents enters the peritoneal cavity, it has in some rare cases given rise to the formation of large gelatinous masses covering the peritoneum, which condition is called *pseudomyxoma of the peritoneum* (Werth) or *gelatinous disease of the peritoneum* (Péan)." Kelly¹ says the escape of fluid into the abdomen may be followed by a condition called pseudomyxomatous peritonitis. Pfannenstiel² has pointed out that this gelatinous material is a glycoproteid—that is, that it splits up into an albumen and a sugar; and that it does not result from a colloid degeneration of the cells of the tumor, as was supposed, but that it is a real secretion of the epithelial cells, which goes on indefinitely without cell destruction.

Hammerstein has given it the name of pseudomucin, because it differs from mucin in its reaction with acetic acid. Salkowski has given the following simple method of demonstrating the presence of a hydrocarbon in it: To 25 centimetres of the cyst fluid add 75 centimetres of 95 per cent alcohol. Shake, filter, and wash the residue well with alcohol, then press out the residue between blotting paper to free it from the alcohol. Next boil the residue in a solution of hydrochloric acid and water—acid, one pint; water, three pints. Neutralize the solution with sodium hydrate 15 per cent solution; then, if a freshly-made Fehling's solution precipitates the copper oxide, this shows the presence of the carbohydrate in the jelly and hence of pseudomucin. Reed's "Text Book of Gynecology," the latest published, does not mention any such condition as I found in my case.

¹ Operative Gynecology, vol. ii., p. 264, Toronto, 1898.

² Archiv. für Gynäkologie, Bd. xxxviii., p. 407, 1890.

Several questions will at once suggest themselves:

1. Was the peritoneum healthy before the tumor burst?
2. Was there a diseased condition set up in the peritoneum by the invading of it by the cyst contents?
3. Was the jelly found in the peritoneal cavity and all removed merely what had formerly been contained in the cyst, or has the peritoneum taken on the power to secrete this jelly-like material?
4. After the removal of every vestige of the jelly and of the remains of the cyst, will the patient regain her health and remain perfectly well, or will she fill up with jelly again?
5. Was this jelly of the same consistence when first poured out from the ruptured cyst, or was it liquid at first and subsequently converted into jelly by the action of the peritoneum?

From the consideration of the history and the great improvement in the patient's appearance during the three weeks which have elapsed since the operation, I am inclined to think that the condition was an accidental or temporary one, due to the presence of the jelly and perhaps to some extent to the remains of the cyst wall, and that, now that both these sources of irritation have been completely removed, there will be no return of the jelly; but the other questions I am unable to answer. Her abdomen is perfectly flat, although she is eating well and sitting up; she is making an ideal convalescence, and will probably go home on the twenty-eighth day.

248 BISHOP STREET.

A CONGENITAL LONGITUDINAL SEPTUM OF THE VAGINA FORMING A DOUBLE VAGINAL ORIFICE.

BY

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(With two illustrations.)

ALTHOUGH the different anomalies of the female genital organs are by no means uncommon, the occurrence of this case seemed to me to be of rather unusual interest and worthy

of publication. Mrs. D., the subject of this article, presented herself at my office May 10, 1901. Her history, briefly told, is as follows: She is 30 years of age, married, and has one living child 21 months old, her second pregnancy. She has had two miscarriages, one at seven months, her first pregnancy, and one at three months, her third pregnancy. Two months ago she gave birth to a dead full-term child. She has been married four years. Her convalescence from her miscarriages was without note, and she describes her labors as severe, the last



FIG. 1.

being instrumental. The catamenia appeared at 18, regular, the flow being of the usual amount, lasting three days and always attended with pain. The occasion of my being consulted was for pelvic pains following the last confinement, and it was upon examination that the defect was discovered. The external genitals were found to be normal, and upon separating the labia a prominent mass bulged forward (Fig. 1). This bridge between the anterior and the posterior walls was thick and fleshy, looking like normal vaginal tissue, and containing

in its upper part the everted and thickened urethra. The septum measured three inches from the anterior to the posterior wall, was about one and a half inches broad at its widest part and about one-quarter of an inch in thickness. Two vaginal orifices were formed in this way. The right contained the remains of the hymen and was the smaller of the two. The left was continuous with the vaginal introitus, and probably the opening through which labor took place. The redundant vaginal walls pouted into both of these orifices, and the finger inserted into either one and hooked through the



FIG. 2.

other (Fig. 2) put the septum on the stretch and pulled the vaginal walls forward. This condition was quite unknown to the patient or to the husband, who had never suspected its existence. It had produced no interference with coition. The patient had gonorrhea at the time of the examination, and to be certain of the diagnosis, although proved by the microscope, we called in the husband. I found him to be the source of infection, although he denied having intercourse since the last confinement, and to my surprise found him to have likewise a

congenital defect, a hypospadias of a marked degree. The patient was sent to the hospital, and the bridge divided transversely above and below, and the denuded vaginal walls treated as anterior and posterior colporrhaphies. The patient made an uneventful recovery. This peculiar condition of a single vagina and a perfect uterus and a congenital septum, with the remains of the hymen entirely to one side, forming a double orifice, is, I believe, very seldom noticed; indeed, I have failed to find any record of such condition.

17 LINCOLN AVENUE.

OCCIPITO-POSTERIOR POSITIONS OF THE VERTEX.¹

BY

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ANY attempt to investigate the literature of this important subject leads us into a most perplexing maze of contradictions—truths, half-truths, and false doctrines. Writers who have been most laboriously exact in investigating one part of the subject pass over another in the most superficial manner and assume as proved that which even a casual investigation should have revealed to be untrue. There are many doctrines which have been believed and taught so long that they seem to be regarded as foundation principles of our science, and yet, so far as I can find, have no foundation in fact.

The object of this paper will be to discuss the mechanism of labor and management of these cases; but, as on both these points the writer differs radically from the doctrines usually taught, it will be necessary to consider the subject rather fully, in order that his reasons for differing may be made plain.

The first difficulty which is met with is in explaining the discrepancy in the frequency with which this position is met by various observers. Practically all writers agree that the first position, L. O. A., occurs in 70 per cent or more of vertex cases, the fourth position, L. O. P., in 1 per cent or less; but in regard to the second and third positions they are not in accord, some claiming that in most cases when the back of the child is to the right a second position exists, while others claim that most cases are primarily third positions which have been con-

¹ Read before the Cincinnati Obstetrical Society, March 14, 1901.

verted into second by anterior rotation of the occiput. To this last view we unhesitatingly subscribe; our reasons will be made plain later.

The diagnosis must be made early if we would know the percentage of primary posterior positions. Before the head has entered the pelvis, while the os uteri is undilated, vaginal examination is of little value in determining the position. The use of palpation and auscultation is here of supreme importance. That we can palpate the child—head, face, neck, back, breech, and limbs—in many cases is beyond dispute; that such perfect palpation is often impossible is equally true, but this concession does not carry with it a confession of our inability to make the diagnosis. Even when the abdomen is fat and rigid and the liquor amnii abundant it is seldom difficult to make out the smooth, rounded outline of the back. The head can usually be distinguished from the breech, if indeed you do not already know from vaginal examination which fetal pole presents. The fetal limbs are easily palpated, and even if ordinary palpation fails to locate them a slight jarring of the child will result in movements which will enable you to locate the limbs. If the vertex presents, the back is to the mother's right, the heart is heard with greatest distinctness to the right and posterior, while the fetal limbs are felt in front and slightly to the left of the median line, we have a third position of the vertex. In palpating above the pubes the head is felt to be nearer the abdominal wall on the left than on the right.

The multitude of rules which are laid down in teaching abdominal palpation usually does more to confuse than to instruct the beginner. If a few of the cardinal principles are understood the minor points will come with experience. Nothing helps the physician so much in developing diagnostic ability as postmortems. The gynecologist perfects his diagnostic ability on the operating table. The obstetrician can verify or disprove his diagnosis by watching the behavior of the head after it passes the vulva.

If the head was primarily posterior but has rotated forward during labor, it will instantly turn with the face anterior as the chin clears the vulva. This movement is due to the unwinding of the twisted neck, and is so rapid and so quickly followed by a turning of the face to the mother's thigh as a result of the shoulders turning into the antero-posterior diameter, that unless the utmost vigilance is used it may entirely

escape our notice. This is a complete refutation of the doctrine advocated by some writers, that when the head rotates forward as a result of uterine contraction the body follows the head in the movement and twisting of the cervical vertebra does not occur. With this method of controlling your observations there is no excuse but indolence for being in doubt of the correctness of your diagnosis. I would place the percentage of primary posterior positions at 16 to 20 per cent. When a uterine contraction comes on, the fetal heart moves forward and to the left, while the impact of the fetal limbs may be felt nearer the left loin of the mother, thus showing that the child rotates on its longitudinal axis during uterine contraction, and again recedes into its former position during the uterine diastole. This is noticed in all vertex cases if a vaginal examination is made during uterine contraction, but has, I think, received insufficient attention both as to its diagnostic importance and its effect upon the mechanism of labor.

So far as I know, Robert Barnes is the only writer who attempts an explanation of the boring movement imparted to the head by uterine contraction. He believes that the reason why the antero-posterior diameter of the uterus is less than the transverse is because of its tendency to preserve its unimpregnated shape, and that contraction of the uterus tends to reduce still more the antero-posterior diameter. The shoulders being obliquely placed, the tendency of the approximation of the anterior to the posterior uterine wall is to push forward the posterior shoulder, and backward the anterior, resulting in rotation, upon its long axis, of the child. Any theory which receives the approbation of this authority should not be rejected without careful consideration, but the reason he assigns, if true, would result in turning the occiput toward the pubes in anterior positions and toward the sacrum in posterior positions, while my observations prove the opposite to be true—posterior positions rotating forward and anterior positions backward toward the transverse diameter of the pelvic brim.

It is therefore necessary to look for another reason for rotation above the brim.

The shape of the uterus at term has received very scant attention in the past, and the same may be said in regard to its changes in shape resulting from uterine contraction. The posterior wall of the abdomen juts forward in the centre as a result of the presence of the spinal column. The uterus, as a

result of this projection, is always placed obliquely after it mounts above the brim, for to retain its place in the median line would be to remain in a position of unstable equilibrium. When the uterus becomes so large as to find insufficient space upon one side, it must of necessity extend to the other and thus ride upon the spinal projection. The uterus, being largely filled with fluid, is, when uncontracted, quite flaccid and will adapt itself to the shape of the bed upon which it rests. We will therefore find that the spinal column indents the posterior uterine wall, thus tending to divide the uterine cavity into two unequal parts, the larger being on that side to which the uterus is deflected.

When the fundus of the uterus is toward the right and the child's back is toward the left, the anterior surface of the child will fall backward and a first position results; but if the back is to the right loin of the mother, the fetal limbs will come forward and be felt in the region of the left linea semilunaris, and there is a third position of the vertex.

If the woman is on her back gravity alone will produce the effects described, but will the back remain posterior with the woman in the upright posture? In most cases, yes. The tension of the abdominal muscles is sufficient to preserve the shape of the uterus. When the abdomen is flaccid and pendulous the upright posture will result in anterior rotation; but little is gained thereby, for engagement is not possible with the fundus too far forward.

What effect does uterine contraction have upon the shape of the uterus? The same as contraction of any other hollow muscular organ: it becomes globular in outline. The fundus comes forward, the back moves forward in posterior positions, backward in anterior, tending to bring the long diameter of the head more nearly into the transverse diameter of the pelvic brim. As in most cases the fundus of the uterus is deflected to the right, it follows that most cases will be primarily either first or third positions, if our explanation of the causation of the positions be true. If the uterus is left oblique the position should be second or fourth. I cannot speak positively in regard to the constancy of left uterine obliquity in primary second positions, for many cases of third position have become converted into second before we see the case. Since I have been interested in this subject it has been my fortune to observe seven cases of primary fourth position, and in six cases left obliquity of the uterus was present. In the seventh case there

was a twin pregnancy, the first child presenting in the fourth, the second in the third position, the fetal limbs mingling in the median line.

The change of location of the fetal extremities and heart sounds during uterine contraction may aid us greatly in arriving at a diagnosis of position; it may enable us to determine whether an occiput which is now anterior was primarily posterior. But how does the rotation of the body upon its long axis affect the mechanism of occipito-posterior labors?

The first stage of labor is usually prolonged and the pains inefficient. The rotation brings the long axis of the head toward the transverse diameter of the pelvic brim. The more powerful the contraction, the more globular the uterus and the larger the arc of the circle in which the occiput swings. The hand and stethoscope reveal the fact that rotation is in direct proportion to the force of the contraction. As soon as firm contraction can be secured, a sufficient amount of rotation may be expected to enable the head to enter the brim in its transverse diameter, where it will remain to be subjected to the same mechanism as anterior positions. In primiparæ the rigid abdominal walls may prevent the uterus from assuming a globular form even when firmly contracted. It is not surprising, therefore, to note that fewer cases rotate forward above the brim in primiparæ than in multiparæ.

We may often aid this anterior rotation by drawing the fundus to the opposite side. If the abdominal walls are sufficiently flaccid to allow us to convert a right uterine obliquity into a left, we will often instantly convert a third into a second position. It is not always possible, however, even in multiparæ, to change the position by so simple a procedure, for the abdominal muscles have accommodated themselves gradually to the condition; but we may bring the fundus far enough to the left to carry the anterior shoulder sufficiently far forward to enable us, by making pressure upon it, to complete rotation. The occiput, having once been brought forward, should be pressed down into the brim and held there until fixed by uterine contractions.

A short time usually suffices to accomplish this purpose; for, unless the uterus is exhausted by an unduly prolonged first stage, the contractions will become vigorous as soon as the position is rectified and the head presses the cervix. After the head is fixed the fundus may be allowed to resume its original position, when the back of the child will again turn backward

and there remain throughout the entire labor, as shown by the chin of the child turning forward immediately after the birth of the head and before the movement known as external restitution occurs. The only way to prevent this is by rotating the child through half instead of one-quarter of a circle, but the position of the body is of little significance if the head is anterior. If the hand is introduced to accomplish anterior rotation, the procedure will vary with the amount of intrauterine space. When there is still present a considerable quantity of liquor amnii, the body will follow the head after it has been rotated through a quarter of a circle, and rotation may be assisted by pressure upon the anterior shoulder by the external hand. If the uterus is closely applied to the child it may be best to rotate by grasping the shoulder by the internal hand. After the head and body have been rotated through half a circle there is no longer danger of the recurrence of the original position.

When the head engages with the occiput posterior, what is the mechanism of delivery? The head may descend to the inferior strait in its original position or it may rotate forward within the pelvis. The mechanism of anterior rotation within the pelvis has not received proper attention and two great mistakes have been made. The resistance offered to the occiput has been considered to the exclusion of the forehead, and lack of flexion has been regarded as almost the sole cause of failure of descent and anterior rotation.

In cases where a small head engages in a large pelvis, no resistance is met with and no tendency to anterior rotation is noticed until the head is upon the perineum, but in other cases it is not possible for the head to pass without great flexion and moulding.

Rotation occurs in the pelvis not so much as a result of resistance to the occiput as to the anterior extremity of the head. The occiput meeting with no special resistance until it descends to the spine of the ischium, rotation high in the pelvis is usually not spoken of by writers on this subject, but I have repeatedly seen it occur. The head occupying the oblique diameter of the pelvis, it follows that the anterior fronto-temporal region must impinge upon the ramus of the pubes; and if the pelvic diameters are insufficient for the head to readily pass, the forehead is crowded backward and the occiput of necessity comes forward. The ease with which this rotation will occur will depend not only upon the relative size of the head, but also upon the shape of the pubic arch.

It is apparent that in those cases where the symphysis projects the side of the forehead may even swing forward, thus carrying the occiput backward. That a small amount of force properly applied will result in rotation of the head I have several times demonstrated by making pressure upon the forehead above the pubes and noting the effect upon the head with a finger in the vagina. It is also apparent that a slight deviation from the normal symmetry of the ramus of the pubes might resist this backward rotation of the forehead and result in impaction. If the occiput comes forward within the pelvis the delivery will in no way differ from an anterior position, except that exhaustion is more apt to occur as a result of previous delay.

Is defective flexion the cause of delay in persistent occipito-posterior positions of the vertex? This is the usual theory, and seems to be based on the following facts:

The lower the position of the anterior fontanelle the greater the difficulty encountered in delivery. When upward pressure is made by the fingers behind the pubes, there is often a mounting upward of the anterior fontanelle and an advance of the head with the corresponding descent of the occiput.

In cases where delay occurs for a time in the pelvic cavity and then proceeds without interference on the part of the attendant, the descent of the head may be observed to be preceded by a mounting upward of the anterior fontanelle.

On casual examination these arguments appear conclusive, and, so far as I can discover in the literature, most writers have regarded them as so obviously true that they have accepted them without question. This position has been taken by so many men of eminence that it may appear foolhardy for one of my experience and attainments to call them in question. Yet when we recall that these same men taught that pelvic cellulitis was the cause of the masses in the pelvis which are now known to be due to pus tubes and peritoneal exudates, and that modern gynecological advancement has relegated their views on most pelvic diseases to the realm of pathological mythology, the fact must be plain that these observers, like those who preceded them and those who followed, were apt to make mistakes, and it behooves us to investigate for ourselves before accepting any doctrine.

The mechanism of vertex labors now taught is practically that of Naegele, with the exception that most writers believe he overestimated the obliquity of the fetal head because the anterior parietal was so accessible.

If the anterior parietal is not lower than its fellow, but only appears so because of the shape of the pelvis, is it not as logical to assume that in posterior positions the anterior fontanelle appears much lower than it is, for the same reason? The pressing upward behind the pubes by the method usually spoken of as that of Uvedale West does not make pressure upon the forehead, but on the anterior temple, thus promoting rotation. If rotation occurs flexion may result; but even if flexion does not occur the recession of the fontanelle from the pubes gives the impression of a mounting upward, for the finger must penetrate further to feel it.

Each writer on this subject, being duly impressed with the universal accord of the long list of eminent men who have preceded him, and feeling that it was a serious matter to place his few observations, if indeed he had made independent observation, against the multiplied experience of the whole profession, would end by accepting the general doctrine, especially as a superficial observation of the cases seems to lend support to it. If he had suspected that possibly the vast majority of writers had been coerced into its support because, like himself, they were overawed by the universal accord, he might, like the present writer, have felt that no subject promises as fruitful a field for independent inquiry as one on which every one agrees, for when men form their opinions from personal experience the personal equation is sure to creep in and differences result. If, however, we confine our objections to the accepted doctrine to arguments calculated to show that a different interpretation may be given from that usually accepted, we cannot thus solve the question which of the doctrines is correct, or whether we must look further for the correct solution of the problem. What direct evidence can be adduced to prove that the lack of descent is not due to defective flexion? Our discussion of this subject will comprise a consideration of (*a*) the mechanical principles involved, (*b*) evidence which is gained by the eye, and (*c*) that which is gained by the hand.

In the third position of the vertex we usually have a right obliquity of the uterus. As the force of a uterine contraction must be projected in the direction of its long axis, therefore the greatest force must be expended upon the left side of the pelvis. As the forehead is upon the left side of the pelvis, and the anterior arm of the head lever is longer than the posterior, flexion must result and continue to increase until met by a sufficient resisting force to overcome it.

As the occiput meets with no special resistance till the spine of the ischium is reached, and the force which drives it down is the resultant of the force applied by the uterus and the resistance met with on the left side of the pelvis, it is difficult to conceive on what mechanical theory the lack of flexion can be supported. If the greater length of the anterior arm of the head lever is sufficient to produce flexion in anterior positions, when the greatest resistance is met with by the occiput, it is hardly conceivable that lack of flexion would be present when the greatest resistance is applied to the long arm as in posterior positions. Again, in occipito-posterior labors the occiput is first to escape from the uterus, and it is exceedingly common for the anterior lip of the cervix to descend almost to the vulva before it retracts over the forehead. This furnishes another restraining force to the anterior arm of the head lever. If we seek evidence with the eye, what is the shape of the head after a difficult occipito-posterior labor? The moulding is excessive and very characteristic. The forehead and anterior portion of the vault are flattened, the occiput is long and pointed, and the whole head recedes abruptly from the brow to the parietal eminences. With defective flexion this deformity would be less marked, while if extension was present, as alleged by some, the occiput would be short and flat, while the forehead would be high and abrupt, the shape of the head approaching that seen in brow presentations. Finally, in cases where delay results, careful palpation reveals the forehead above the brim while the occiput is well down in the pelvis, while the hand introduced within the vagina corroborates the correctness of this observation. Every case observed by me has been flexed, I may say excessively flexed, but in impacted cases the flexion has been less marked than in others. When the occiput is anterior, the anterior pelvic wall is so short that the length of the child's neck is sufficient to insure the exit of the occiput before the body of the child enters the pelvis; but with the back of the child behind, the occiput must travel a distance approximating ten inches from the sacral promontory to the edge of the greatly distended perineum. Under such conditions the shoulders must enter the brim long before the head reaches the outlet, and the constantly increasing flexion must result sooner or later in the chin coming in contact with the sternum, when further flexion is impossible. The larger the child in proportion to the pelvis, the sooner must this impaction occur, so that it is very plain

why the difficulty of delivery should increase in proportion to the accessibility of the anterior fontanelle.

This condition has been well described by Penrose in Hirst's "American System of Obstetrics." With this explanation of the arrest of flexion we are in a position to appreciate the reason for the frequent failure of our measures to promote flexion. As the fundus of the uterus comes forward during contraction, the body of the child is lifted forward, and the force of the contraction is largely transmitted to the chin through the sternum. When the head is thus fixed at either extremity by the spinal column and the contact of the chin with the sternum, spontaneous rotation becomes more difficult of accomplishment. When this condition occurs the only hope of spontaneous delivery is in excessive moulding of the head, which will result in diminishing the cephalic diameters or make possible anterior rotation. This solution of the problem requires a long time, and the woman has usually already exhausted herself, while longer delay will almost certainly result fatally to the child. Anterior rotation with the hand in the vagina is often a serviceable expedient, but will not be discussed, as we prefer to devote the time to controverted questions.

Having failed to effect rotation with the fingers or hand, what resources are left to us? All agree as to the propriety of forceps, but there are radical differences as to the method of using them. Those who apply forceps and make direct traction as in anterior positions have the support of the vast majority of writers for so doing, but it is the purpose of this paper to show that this method is radically wrong and to produce the reasons for so thinking. In order to have an intelligent conception of the subject, it is necessary to consider the cases from the standpoint of the cause of delay. We frequently are compelled to assist in these cases where no disproportion exists, the mother simply being exhausted as a result of delay in the first stage of labor. In such a case the method of direct traction is all that is required, and the bringing down of the head with the occiput behind is an imitation of Nature; but when the head encounters the perineum Nature attempts to turn the occiput forward, while our authorities deliver the occiput over the perineum, even while admitting that the pelvic floor will probably suffer in consequence. That the resistance of the pelvic floor is sufficient to cause anterior rotation, except in cases where the head is very small or the vulva unusually large, is disputed by none.

In anterior positions the suboccipito-bregmatic diameter must pass; in posterior positions, the occipito-frontal. Measurements of the heads of new-born infants prove that the circumference of the vulva must be nearly two inches greater if the occiput is born behind. If laceration is common when the occiput emerges anterior, is there any wonder that extensive laceration of the perineum usually results when the vulva is distended two inches more? Add to this the slow labor with its resultant edema of the soft parts, and the fact that edematous tissue loses not only its elasticity but its strength, and you are left to wonder why complete laceration is not more common than it is. It would seem that, whether we are guided by the example of Nature or by physical conditions, the head should be rotated at the vulva. The method of effecting rotation will be considered later. When there is disproportion between the diameters which present and the pelvic canal, what objections exist to the usual practice of dragging down the head with the occiput posterior?

1. It has been experimentally demonstrated that even in the dead child the intracranial pressure is increased by forced flexion. If the child be alive the forced flexion will result in increased blood pressure within the cranium, for the veins are more easily compressed than the arteries. If any one thinks this point is entirely theoretical, he can soon prove its truth by forcibly flexing his chin upon his sternum, and in a few minutes he will feel the effects of cerebral hyperemia. The point of chief resistance in forceps delivery is the anterior pelvic wall. Even when axis tractors are used the greatest force is applied to the pubes, for ideal axis traction has not yet been attained. As the soft top of the head is in contact with the pubic ramus, it follows that, when great force is required, damage to the intracranial structures may result from direct violence, while the depression of the soft cranial vault increases still more the intracranial pressure. If the child is born alive it will usually die within a few days from convulsions.

2. Most authorities agree that the hold is less secure than in anterior positions, and that premature forward movement of the handles is almost sure to cause the blades to lose their hold (Robert Barnes).

If the usual method of applying the blades to the sides of the pelvis be used, the hold is insecure for the following reasons: In the third position the left blade will be applied to the right side of the forehead, where the hold is very insecure be-

cause of the excessive flexion and the flattened condition of the forehead due to moulding. The extreme tip of the blade alone grasps the head. The right blade is applied to the left side of the occiput, which is also excessively moulded, and the grasp of this blade is made only by its anterior edge. The slightest starting of the blades will result in immediate slipping, so that an unusually firm grasp of the handles is necessary, and premature forward movement of the handles must be carefully guarded against. This firm grasp of the handles not only increases the danger of injury to the child, but may cause posterior rotation of the occiput, as I have myself seen.

3. The irregular application of the blades to the head, by leaving the edges projecting, endangers the soft parts of the mother, even if slipping does not occur. For this reason, if you do not make a regular application in the beginning the blades should be readjusted when the inferior strait is reached, or the perineum may be cut by a projecting edge.

It is best to apply the blades to the sides of the head, without regard to their relations to the pelvis. This application requires more care and skill than the pelvic application, but the increased safety and ease with which extraction can be effected more than compensates for the trouble of making the application. Even when the blades are adjusted to the sides of the head the danger of slipping is not entirely obviated. If the head is high in the pelvis the excessive flexion places the forehead and anterior half of the head well up behind the pubes, while that portion which is accessible to the blades is the greatly elongated occiput. Try as you will to carry their tips forward, they will yet find a resting place behind the ears. As the head rapidly narrows from this point backward, and as in most forceps there is a greater distance between the posterior than between the anterior edges of the blades, it follows that great care must be used in making traction and that any premature forward movement of the handles will endanger their hold upon the head. It is therefore necessary to pull with great care, and to examine carefully and frequently, to be sure that the blades are not slowly working backward.

From what has been said it is plain that I cannot give support to any of the methods of applying forceps with the object of lowering the occiput and promoting flexion. A method which is usually credited to Reynolds, of Boston, but which was old when he entered the profession, is the application of the blades with the pelvic curve reversed, so that the blades will grasp

the occiput. As before stated, when I have applied the blades in the usual way they have always found lodgment behind the ears, unless the head was very low in the pelvis, so that I can see no advantage in reversing all the rules of forceps application in order to attain results identical with those attained with the simple procedure. Dr. Stewart, of Cincinnati, has contributed a paper on this subject in which he advises the following procedure: He uses axis-traction forceps, raises the handles toward the pubes, and makes backward traction upon the traction rods. Forward movement of the handles and backward traction at the lock has been suggested many times, but there is a practical unanimity among writers that forward movement of the handles should be carefully guarded against. His method differs from the older simply in this particular, that the backward traction is applied nearer the head and is therefore more powerful. Power is a good thing, safely and properly applied, but in an instrumental procedure of this kind the greater the power the more objectionable the procedure. To be specific, the objections are three. It is based on a false idea of the cause of delay. He speaks constantly of extension of the head, a condition which is hardly compatible with facts. That there is sufficient room for extension to occur in the case of a small head in an average pelvis or an average head in a large pelvis cannot be doubted, but in these cases no trouble is encountered, the head coming through the pelvis in the occipito-posterior position. It is in cases where the head is relatively too large that delay occurs, and in such case extension is a physical impossibility because of lack of space. The lack of flexion, when it does exist, not being a cause of delay, but being itself a result of impaction which can only be overcome by rotation, his method is not calculated to produce the results aimed at.

4. The arguments of an insecure hold have already received sufficient attention in this paper. Slipping of the blades is a serious menace to the mother's soft parts.

The method is based upon an erroneous idea of the conditions present and disregards established facts, but even if it could be safely used it would accomplish no more than the ordinary traction, as we have already shown.

When assisting with forceps in a case where delay is simply the result of exhaustion, the traction downward and backward should be continued until the head is upon the perineum. If the grasp of the head has not been regular the blades should

be now carefully adjusted to the sides of the head. The blades should now be separated, and, by depressing the handles, are brought as nearly as possible parallel to the long axis of the head. Grasping the handles you elevate them toward the pubes to secure forced flexion, and when the head is brought down until the vulva is distended two inches, you have it in Nature's favorite position for rotating. Here it may be left to Nature or rotated with forceps. My preference is for instrumental rotation, for the following reasons:

1. The woman is usually already exhausted, and great delay might occur before she could, with her enfeebled powers, effect rotation and delivery.

2. The long labor has often enfeebled the child, and irregular spasmodic action of the uterus is not uncommon at this time.

There is a much larger portion of the child out of the uterus than in anterior positions, and the retraction of the uterus from this cause must interfere to some extent with the utero-placental circulation. Whatever the explanation, it is certain that a much larger percentage of asphyxiated children are born in this position than in anterior positions, and irregularity of the fetal heart is at this time the rule rather than the exception.

3. The long time that the head has been in the pelvis, and the fact that a considerable portion of the body has been crowded below the brim, result quite frequently in sufficient interference with the pelvic circulation to cause marked edema of the soft parts.

While the resistance of a normal perineum is sufficient to cause anterior rotation in the vast majority of cases, a markedly edematous perineum is often so lacking in elasticity and strength that it will split before rotation occurs.

Rotation when the head is distending the vulva is a very simple procedure, and is without danger to mother or child if the blades accurately fit the sides of the head and the movement is executed with ordinary care. When the head has been brought down until the vulva is somewhat distended, grasp the forceps with one hand near the head and, making that a fixed point, slowly and without force move the handles in the arc of a circle to the mother's left in O. R. P., to her right in O. L. P. Absolutely no appreciable force must be used; if you move the handles in the proper direction the movement must be restrained rather than assisted after it is

once started. You may now leave the case to Nature or re-apply the forceps, but I usually deliver with the forceps in the reversed position. Grasping the shanks near the vulva with the right hand and resting the handles under the forearm, I lift the head over the perineum, assisting or restraining its advance, while with the left hand I shell out the head.

When the delay is due to disproportion and impaction exists, the problem is much more serious. What is the problem presented? A head impacted in a pelvis whose oblique diameter is less than the diameter of the head presenting. The diameter of the head cannot be reduced by increased flexion, for the chin is in contact with the sternum. Unless the head rotates and thus releases the impaction, the only hope of delivery is (1) the application of sufficient traction force for a sufficiently long time to mould the head to the passage, (2) the lengthening of the pelvic diameter by symphyseotomy, (3) the reduction of the diameters of the head by craniotomy. By the first method the soft top of the cranial vault is pulled against the ramus of the pubes with such force that, if life is not destroyed immediately, the child will die shortly after birth from convulsions or live with a crippled brain. Symphyseotomy, if done early enough, might give a fair chance of saving the lives of both, but an operation which involves the use of the knife will hardly become popular in private practice unless it offers a much better chance for saving life than any other expedient at our command. This it does not do.

There is a strong feeling against craniotomy in the profession, and I believe the occasion will seldom arise when craniotomy upon the living child is demanded. It is certainly not called for in the class of cases under discussion. Yet craniotomy is a conservative measure when compared with forcible extraction with the occiput behind and the head impacted. It appears to me that the only recommendation for this procedure is the ease with which the idea can be grasped. Even an untutored savage can understand the doctrine that, a given force proving insufficient, more force is to be used. If ordinary forceps fail the more powerful axis-traction instrument is applied with its powerful set screw. One hand failing, the tractors are grasped by both, the feet are braced, and brute force is at a premium. This is no sensational picture drawn for the occasion, but a mild copy of the clinical pictures which are painted in medical journals and discussed in medical societies, not by beginners, not by the ignorant, not by the reckless who

have no regard for human life, but by men of learning, experience, and skill; men who would throw up their hands in holy horror at craniotomy on the living child, and condemn rotation with forceps because it is apt to wring the neck of the child or injure the soft parts of the mother.

What is the condition of the child delivered then? Dead, dying, or idiotic! What is the condition of the mother's soft parts? Contused and torn, sometimes clear to the uterus, according to their own testimony. These are the prognostic forecasts of those who practise forcible extraction, not my own. Craniotomy could produce no worse results for the child, while the damage to the mother would be avoided. But this paper is not a defence of craniotomy, for there are yet better ways. Smellie, in 1745, found a case which he could not deliver with forceps. After the instrument had lost its hold several times and he was making ready to perforate, the thought occurred to him to try rotation with forceps. He found rotation easy, delivered a living child, and always afterward practised the method. Simpson was an ardent advocate of this method. If the head is impacted high in the pelvis, with the occiput behind, and reasonable traction with forceps fails to cause its descent, how can rotation with forceps be effected?

Apply the blades as in an ordinary delivery, and, with the head in the third position, slowly, carefully, and without force swing the handles in the arc of a circle toward the mother's left. No difficulty will be encountered till the head has rotated a little past the transverse diameter. The head is held in this position for a few minutes in order that it may become accustomed to its new position, when the forceps is removed and reapplied as before and the rotation completed by again swinging the handles in the arc of a circle toward the mother's left thigh. It may happen that when the blades are removed after the first movement of rotation the head will resume its original position. This can be prevented by having the nurse press the fundus of the uterus over to the left before the blades are removed. This procedure, by causing the child to balance over the spinal column, will keep the head in its new position until it can again be grasped by the blades. It incidentally furnishes evidence of the correctness of our reasoning in regard to the part played by obliquity of the uterus in the causation of this position.

If the head is high in the pelvis the double application is

necessary; but in some cases, where the head is but slightly above the inferior strait, it can be completely rotated with the one application if the vulva is not too narrow. This complete rotation is possible in any case where the so-called Reynolds application can be used. Rotation by the double application is possible at any height in the pelvis, but of course would not be thought of until the parietal diameter has passed the brim.

There are several objections which are always brought forward against rotation with forceps. Surprising as it may seem, when we remember that Nature overcomes the difficulty by rotation, the argument most often relied upon to condemn forceps rotation is danger of damage to the spinal cord by twisting of the neck. Without having performed any experiments to test the truth of their claim, they tell us it is *apparent* that damage *must* result. Tarnier and other French observers demonstrated a generation ago by frozen sections of new-born infants that even when the head was rotated through half a circle the cord was not pressed upon; that rotation was not confined to the atlo-axoid joint, but was present in all the cervical and upper three dorsal joints, but that forced flexion did produce the effects attributed to rotation. In spite of these investigations, most writers still use this imaginary danger as an argument against rotation. But it is not alone the enemies of forceps rotation who fear twisting of the neck. Simpson himself sought to guard against damage from this cause, and attributed his success in preventing fetal injury to the fact that he was careful to rotate only during uterine contraction, believing that thus the body rotated with the head because the whole child became rigid from pressure of the uterus. There was some excuse for this belief in his day, because diagnosis by palpation and auscultation had not then advanced to their present perfection and the experiments above referred to had not then been made. The same allowance cannot be made for obstetricians of our own day, and yet in a recent discussion in New York the same fear was reflected by most of those participating, while not one called the point in question. Even Grandin, who is probably less inclined to be governed by the musty traditions of the past than any other modern writer, reflects the same fear in his text book, apparently forgetting the translations of his youth, for it was from his translation of Charpentier that I first found the experiments referred to. Can better proof be asked of the

tendency of the profession to bow to the logic of numbers? I yield to no man in reverence for those who worked and wrote in days gone by, but let us not forget that while a man makes no mistakes after death, none enjoyed such immunity while living. Whether rotation is effected during uterine contraction or in the interval, the back of the child remains behind. The claim that the maternal soft parts may be damaged by projecting edges does not apply to cases where rotation is attempted at the vulva, for in these cases the blades must fit accurately the sides of the fetal head. Any operator who cannot apply the blades accurately to the sides of the head when at the outlet cannot be regarded as competent to manage such cases of labor. Even if the criticism were just, a projecting edge is almost certain to cut the perineum if the occiput is delivered behind. If the head is high in the pelvis a regular application may not be possible; but if an edge does project it will be the posterior edge of that blade which grasps the occiput, and the movement of the head will be in the opposite direction to that in which the edge projects—a condition which reduces to the minimum the chances of injury to the mother. Add to this the slow, gentle movement which is recommended, and the chances of maternal injury are in reality much less than where the occiput is delivered behind. We are told that any attempt at rotation with forceps is apt to fail. This is not due to any fault of the instruments, but to the method of using them. One of the best articles ever published on this subject is that by Penrose in Hirst's "American System of Obstetrics." It contains much valuable information attractively set forth, but some of his conclusions will bear a different interpretation from that given by the author. He says: "I believe that in all cases where a normal head fails to rotate on a normal perineum the trouble is a sixth position." In this belief the author is in a hopeless minority, but we do not use this quotation with any notion of attempting to refute it, but as a justification for quoting his remarks on the management of a sixth position in discussing a third or fourth. He recommends the use of *short, straight* forceps, by which the head is to be *coaxed* to rotate. If the head becomes impacted the time for coaxing is past, and with *short, straight* forceps we must attempt to *force* rotation. Should a prudent application of forceps fail—"and it constantly will fail"—craniotomy is our only resource. I very much regret that I am unable to give his exact words for lack of space, but presume

that most of you are familiar with the original. Now, I submit the proposition that in any surgical procedure undertaken with this belief that it "constantly will fail," the operator is not apt to meet with an agreeable surprise. Nothing is so conducive to failure as its anticipation. If, in addition, the method used is defective, failure is almost inevitable. Smellie used the straight forceps in his first case, at least, for in 1745 he had not yet added the pelvic curve to his instrument, and most of those who have attempted it since his time have followed his example. Not only this, but they grasp the handles and attempt to turn the head by a twisting movement, just as a carpenter turns a screwdriver in driving a screw. When we compare the twisting movement to the leverage we use in swinging the handles in the arc of a circle, the rotary power exerted is like that of a key compared to a monkey wrench. With the method recommended I have been enabled to turn the occiput out of its posterior position by using only the thumb and index finger, after failing to budge it with both hands by using the twisting method. The explanation is that where the leverage is used the axis of rotation corresponds more nearly to the long diameter of the head, and it is allowed to flex as it rotates. The simpler procedure of rotation at the vulva has been used many times, has been uniformly successful, and has never required the exercise of any appreciable force. When I first employed it, over eight years ago, I supposed the idea to have been original with me, but later found it to have been used long before, Charpentier referring to it as the method of Bailly.

The rotation by the double application I have used nine times. It has always been successful, and in no case has damage resulted to the mother which could by any possibility be attributed to the method, although in several cases not more than two inches dilatation of the os uteri was present. These cases were of course within the pelvis, although the cervix was but partially dilated. A similar procedure is recommended by Verrier in mento-posterior positions of the face.

While I have read everything on this subject which I could find in literature, I have made no attempt to furnish a library paper, but have confined myself as closely as possible to the results of my own clinical observation. While this clinical experience has been very meagre in comparison to that enjoyed by many of you, it has been carefully studied and no effort spared to arrive at correct conclusions. In making

these observations I have totally disregarded the modern doctrine that vaginal examination should be avoided for fear of sepsis, believing that all progress in our knowledge of the mechanism of labor must cease when we limit our observations by the restriction now advocated. Although frequently watching the behavior of the head, with a finger in the vagina, for hours at a time, I have thus far totally escaped any injurious effects therefrom. The vast fund of valuable information which we possess of this interesting subject has not even been skimmed, nor could it be in a paper which was to be read in its entirety before a society of this kind. I am aware that this subject is regarded as threadbare by some obstetricians, but a condition which causes more fetal deaths and more maternal morbidity than any other with which we meet cannot be exhausted so long as a majority of those who practise in our department are even ignorant of the frequency with which the condition confronts them. I have asked your attention to this subject to-night because I believe we can, by following the methods advocated, convert these difficult and often fatal cases into very simple problems.

In closing, I will state that I would not advise any attempt at rotation in cases where one oblique diameter of the pelvis is shortened from any cause. In my limited experience the obliquity of the pelvis which follows hip-joint disease would seem to be most common in this country, but in these cases the other diameter has been lengthened so that no trouble need be anticipated in the descent of the occiput behind.

STYPTICIN IN UTERINE HEMORRHAGE.¹

BY

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So frequently have I been asked in consultation practice, What is stypticin? when commending its employment for the control of uterine bleeding, that I have again chosen it as the subject of a short paper. For clinical histories of instances in which it was used I refer to an article by me that appeared in the *Medical News* of April 8, 1899. In that paper the results of other observers are recorded.

¹ Read by invitation before the Eastern Medical Society.

The technical name of the drug is cotarnine hydrochlorate, but its discoverer, Prof. Martin Freund, termed it stypticin on account of its hemostatic properties. Cotarnine is a fractionation product by oxidation from narcotine, an alkaloid obtained from opium. The hydrochlorate (stypticin) occurs usually as a minutely crystallized yellow powder having an intensely bitter taste. It is soluble in water, the solution becoming darker on exposure to light. The conclusions on its physiological action, arrived at by Edmund Falk,¹ of the Pharmacological Institute of Berlin, are:

"1. In cold- and warm-blooded animals it produces paralysis by its action on the motor sphere of the spinal cord. In the warm-blooded a complete paralysis occurs late, usually only shortly prior to death.

"2. It produces in the warm-blooded, by its action on the cerebrum, a mild narcotic state, but not sleep nor complete narcosis.

"3. In rabbits and dogs it is productive, by both internal and subcutaneous administration, of intestinal peristalsis and fecal evacuations.

"4. It has no direct primary influence in the warm-blooded on the heart, circulatory system, or blood pressure. The effects on the heart, pulse, and blood pressure are of secondary nature, through the influence of cotarnine on respiration; only in very large doses, with long-continued artificial respiration, is a weakened heart action produced.

"5. Its action on the respiratory centre, after transitory irritation, is paralytic; respiration is, therefore, increased at first, but subsequently rapidly sinks to a quietus.

"6. Fatal termination is produced by paralysis of the respiratory centre, but can at any time be kept in abeyance by artificial respiration."

My clinical experience with stypticin is quite extensive, and satisfactory in most instances, when employed in properly selected cases.

Since the publication of the paper alluded to, the remedy has been tried on a number of additional patients, under various conditions, and I shall cite these as illustrations in which good results may be expected from the administration of the drug.

Not infrequently virgins without detectable pathologic changes in the pelvic organs are subject to profuse and

¹ Therap. Monatsh., x., No. 1.

irregular menstruation, sometimes to such extent that they are anemic and quite weak. When irregularity and profuseness are associated the drug should be taken continuously for three or four months, in doses of 0.05 three times daily, except during menstruation, when the dose should be taken at intervals of two or three hours until the flow is diminished. The longer intervals of administration may then be resumed. Even in a few instances when dysmenorrhea existed this drug was said to have alleviated the pain. This, however, was not the rule; on the contrary, generally no effect was observed on that symptom.

When only profuse menstruation is present, the periods being regular, the administration of stypticin should be commenced four days before the expected flow, the same dose at the same intervals being given as in the other condition.

Again, pelvic inflammation after full-term delivery is occasionally accompanied by bleeding from the genital tract. A few days under stypticin treatment will very likely bring about relief.

There are instances of atypical bleeding after confinement, caused by retention of decidua or particles of retained placenta, in which, although these have been removed, the bleeding does not cease; here, too, the remedy under consideration has an excellent effect, but no benefit can be looked for until such remnants have been removed.

It is not uncommon to see women with atypical bleeding during the climacteric period for which no pathologic condition can be found. Most remarkable successes have been observed then from the administration of a few large doses of the drug. Should bleeding recur stypticin should again be ordered.

When the bleeding is caused by inflammation of the uterine mucosa, either alone or associated with chronic metritis, the treatment with this or, for that matter, any other drug taken internally has proved *unsatisfactory* in my hands. The same statement holds good when a retroflexion or version accompanies the endometritis. In such cases local treatment, under which curetting might possibly be included, should be resorted to. If that does not effect a cure, then stypticin may be expected to act beneficially.

While stypticin has been found to act with benefit in some cases of endometritis, it is useless in endometritis fungosa.

Occasionally patients are seen who have irregular uterine

hemorrhage whose cause cannot be found. In but one such instance have I seen a satisfactory result follow the use of this drug.

Pelvic exudates are sometimes caused by traumatism, if an infection takes place at the time when the traumatism is inflicted; for instance, the introduction of a sound into the uterus without antiseptic precaution or dilatation of the cervical canal. As the result of the para- or perimetritic exudate, bleeding from the genital tract is not an unusual occurrence. I have seen persistent hemorrhage for from four to six weeks as a result of such conditions. Although stypticin does not give quite as satisfactory results in this class of cases, yet it has proved more beneficial than other drugs. The bleeding usually began to diminish on the second or third day, and continued to be slight, if it did not cease entirely.

Atypical bleeding, sometimes associated with subinvolution of the uterus post puerperium, yields remarkably soon to the use of stypticin.

In a few instances bleeding during pregnancy has been arrested by the administration of stypticin; in no case was uterine contraction produced by its employment.

Numerous good results have been reported from the use of stypticin in the controlling of hemorrhage caused by fibromyomatous tumors. *My own observations do not impress me favorably* with its use in these nor in malignant neoplasms of the uterus giving rise to hemorrhage.

If a quick action from the drug is wanted, it is best to use the remedy subcutaneously. With antiseptic precautions, two to three grains dissolved in sterile water should be injected into the buttocks and repeated after four to six hours. Two to three injections usually suffice to obtain the desired result, after which the remedy may be given by the mouth, either in capsules or tablets. I have mentioned two or three grains as the dose, but five grains have often been injected by me without producing the slightest untoward symptom.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.

PROCEEDINGS OF THE TWENTY-SIXTH ANNUAL MEETING, HELD IN CHICAGO,
MAY 30, 31, AND JUNE 1, 1901.

*The President, ELY VAN DE WARKER, M.D., of Syracuse,
N. Y., in the Chair.*

The Society met in the Assembly Hall of the Fine Arts Building.

An

ADDRESS OF WELCOME

was delivered by DR. FERNAND HENROTIN, of Chicago, which was responded to by the PRESIDENT.

DR. CHAUNCEY D. PALMER, of Cincinnati, O., read a paper on

INTRALIGAMENTOUS CYSTS: THEIR DIAGNOSIS AND TREATMENT.

All kinds of cysts, whether oöphoritic, paroöphoritic, or parovarian, may grow into the folds of the broad ligament and become intraligamentous. The paroöphoritic cyst is most apt to take on this special course of movement in its progressive development.

All ovarian cysts, of whatever kind, should be removed by surgical procedures, the sooner the better. But the removal of intraligamentous cysts demands the most correct knowledge and superior skill. The essayist then dwelt upon the advisability, if not necessity, of operators availing themselves of the extraordinary opportunities, when the abdomen is opened, to see and to feel and to map out what it is, where it is, and determine what methods are best to adopt in the removal of pelvic growths. Intraligamentous cysts are, as a rule, easily peeled out of the broad ligaments. Enucleation, first suggested by Dr. Mynter, of Buffalo, can be done, but it ought only to be attempted when the attachments are superficial. An attempt, begun in the old way, on some intraligamentous cysts may have to be abandoned as an incomplete operation or as an inoperable case. Many such cases have died on the table. He referred to the danger of wounding the ureters, wounding the uterine arteries, and then he earnestly advocated the advisability of completely exsecting the uterus, as well as the appendages thereof, when the cysts are bilateral and where they are deeply embedded within the surrounding textures. This new method of procedure, while seemingly the more radical way, is the only

rational method of a skilful surgical extirpation of the diseased structures. He lauded highly irrigation of the peritoneal cavity with gallons of hot salt water after section, and the measures he had utilized of a continuous peritoneal irrigation of hot sterilized water, used for hours or days, in many cases of post-operative septic peritonitis.

DR. WILLIAM H. WATHEN, of Louisville, Ky., read a paper on

IMPROVED TECHNIQUE IN THE SURGICAL TREATMENT OF
UTERINE MYOMATA.

The perfection of technique in operations for the removal of uterine or pelvic myomata is the result of the application in these operations of the variety of details suggested and practised by different surgeons, and we can no longer speak of hysterectomy as an operation peculiar to any one, nor can we, in many instances, outline in advance the complete technique we will observe in an operation.

Our knowledge of the anatomy of the uterine and pelvic structures, and of pathological changes resulting from diseases of these structures in relation to ovarian myomata, is so perfect that the operations for the removal of these tumors are little more than the application of common sense with a reasonable amount of mechanical skill.

The dangers during the operation are hemorrhage or injury to the bladder, ureters, or intestines, and if we are prepared to avoid these and operate speedily there is hardly a condition that may not be successfully treated. Unless there is some contraindication, myomata not larger than a fetal head may be easily removed per vaginam, and if we used well-constructed forceps no successful operator would wound the bladder, the intestines, or the ureter, the last named of which, if necessary, may be protected by ureteral catheterization, which may also be used as a means of protecting the ureters in the suprapubic method.

Experience will aid us in the selection of cases suitable for the vaginal method; for while he has removed with ease uterine myomata twice the size of a fetal head, he has had great difficulty in removing one much smaller than a fetal head. The conditions most favorable for the vaginal method are a large pelvis, a large and easily dilated vagina, and a soft variety of tumor that can be easily morcellated. The operation may be much more readily and successfully performed by almost a total exclusion of retractors other than the fingers; there is never a necessity for the use of more than one, and often none are required.

In operations in which we have selected the vaginal method we should always be prepared, and have the patient prepared, for the suprapubic method, for difficulties may arise that will require us to open the abdomen and complete the operation by the combined method.

He emphasized the value of well-constructed forceps in both the vaginal and suprapubic methods as a means of speedily and successfully completing the operation, and urged that, with few exceptions, no ligatures should be applied until the tumors are removed. This is doubtless almost universally recognized as the proper method of procedure in the operations per vaginam, but in the suprapubic method much valuable time is often wasted by efforts to ligate vessels before the removal of the tumor.

Where there is a well-developed broad ligament, forceps may be applied and the tumor removed within ten minutes, and the arteries afterward ligated in continuity or *en masse*, for all obstruction in reaching them has been removed.

When the myoma has unfolded the broad ligaments and the tumor is wedged tightly in the pelvis, unless there be some local contraindication, it is best to begin the operation per vaginam and complete it from above. By this method the uterine arteries are clamped, and when the ovarian are clamped the hemorrhage from enucleation of the tumor, by the method that may suggest itself as most practicable, need not be considerable.

In some instances the operation may be more speedily performed by bisecting the uterus and enucleating from below, being careful to avoid injury to the bladder or the ureters; but the uterine artery should be clamped per vaginam, and the ovarian when the abdomen is opened.

When the myoma is in the broad ligament, entirely or practically separated from the uterus, it may be enucleated, leaving the woman capable of child-bearing.

There is no consensus of opinion as to whether it is better to remove or leave the cervix, one operator claiming that its presence adds greatly to the protection of the vaginal vault, another that it is of no value and that cancer may afterward develop in it.

In an extended experience, where the cervix was removed in many cases and not removed in others, he has learned that in the former convalescence was much more rapid and there were fewer complications. This has been so marked that a nurse who has seen fifty per cent of his hysterectomies for the last six years called his attention to this fact as being nearly universal.

If the operation is done by the combined method, then the cervix may be removed without protracting the operation.

He does not believe there are many cases of uterine myomata where an operation is indicated in which the tumor or tumors may be enucleated, leaving the uterus capable of performing its normal functions; but where this can be accomplished myomectomy should be the method of election. In these operations hemorrhage may be greatly lessened by applying a clamp during the operation to each broad ligament, but not tight enough to cause total strangulation.

In closing the cavity caused by the enucleation of the

tumor, perfect asepsis is as essential as in any operation in surgery, for the lymphatics and blood vessels are so abundant that any septic material or toxin would be speedily absorbed.

Where the cavity can be closed without using layers of buried sutures, he thinks the danger of infection is greatly lessened, because the amount of material left in the tissue is much less and drainage into the peritoneal cavity more perfect.

He is convinced that catgut may be buried in the uterus that is free of all forms of bacteria, but may cause the death of our patient because of some pre-existing toxin formed by decomposition of the gut before sterilization, and which cannot be removed by any known method of sterilization. As evidence of this fact, he referred to two recent cases upon whom he operated by enucleating myomata, closing the cavity by layers of buried catgut. Neither of these patients had any evidence of septic infection; there was neither distension of the abdomen nor vomiting, and the bowels moved daily. Up to within a few hours of death they were not suffering, and it was believed they were doing well and would soon recover. The temperature rose to 103° within twenty-four hours, and remained from 103° to 105° until death at the end of six days. The pulse gradually increased in rapidity until it became too rapid to be counted. The symptoms in each case were nearly identical, and both patients were buoyant, as though they had taken some stimulant. He does not believe that the catgut in these cases caused trouble by containing germs, but that death resulted from the retained toxin in the gut.

DR. PHILANDER A. HARRIS, of Paterson, N. J., read a paper entitled

DISMENORRHEA AS A FACTOR IN DETERMINING THE CHARACTER OF OPERATIONS ON THE UTERINE APPENDAGES.

Dysmenorrhea is regarded by the reader of the paper as a symptom of one of several distinct affections, and should in no sense be treated as a distinct disease. In other words, it is only a symptomatic disease.

He objects to the employment of the term intermenstrual dysmenorrhea, but he would not exclude the pains which begin a few days before menstruation and which do not cease until after the beginning, during, or shortly subsequent to menstruation.

He divides all cases of dysmenorrhea into two classes. In the first class he places those with whom menstruation was painful from the very beginning of menstrual life. Such cases are designated as primitive dysmenorrhea.

The second class includes all with whom menstruation was carried on painlessly at first, but became painful some time afterward. Great importance is attached to the item of history-taking of cases, and in that relation particular attention must be paid to the character, location, duration, time of de-

velopment, and termination of not only intermenstrual pains, but also the pains of menstruation. Indifferent history-taking accounts in this relation for the slow crystallization of clinical facts. All the items of history should appear in the history book and influence the operator in the character and extent of operations for the diseases with which dysmenorrhea is associated.

The author occupies the usual ground of ascribing painful menstruation to local congestions. For such local congestions there are several causes, the most important of which are the suppurations of the tube and ovary. In this relation he characterizes the Fallopian tube as the natural habitat of pelvic suppuration, and the ovary as a frequent participant in such inflammations.

So long as a diseased tube exists in an individual an adjacent ovary may become infected and produce dysmenorrhea.

Any operation which terminates suppuration in the tube practically insures the ovary against further infection from that source.

If the ovary is already infected, incision of or removal of the pyogenic sac, with excision of the diseased tube, affords a healthful future for the remaining portion of the ovary, except, as in certain instances, the organ be so cavernated with pus and its stroma so effaced as to preclude any hope of saving any portion of it. Only complete removal of the suppurating tube can be entirely relied on for an effective cure of the extrauterine suppuration. Amputations and resections of diseased tubes, which have one quality of not necessarily fertilizing the patient, are far less likely to arrest extrauterine suppuration, and in just that degree are less likely to cure the dysmenorrhea.

If menstruation was painless or comparatively so until infection invaded the adnexa, excision of the tubes and removal of pyogenic sacs in ovary and ovaries can be relied on to arrest suppuration and also the dysmenorrhea.

In these operations always manage to leave at least a piece of one ovary, or a whole ovary, thus avoiding the surgical menopause and retaining for the woman the quality of health and painless menstruation, even if there be little or no hope of child-bearing.

Attention is called to the various degenerations of ovaries, as colloid, cystic, neoplasms, etc., any or all of which may cause dysmenorrhea.

We are greatly in need of criteria by which we may, whilst operating, determine more exactly not only the relation of these degenerations to painful menstruation, but to the other and more vital interests of the patient.

The reader has never made a suprapubic section for the single purpose of curing dysmenorrhea, but can conceive of instances in which such an operation might be justified.

If any particular case exhibits an unmistakable history of pronounced primitive dysmenorrhea or of severe or long-con-

tinued neuralgic dysmenorrhea for a considerable time prior to the beginning of pelvic suppuration, the dysmenorrhea will not be cured by any operation which simply terminates extra-uterine suppuration. Only removal of the ovaries can be relied on to entirely cure such a case.

We should seriously weigh the items of menstrual pain and physical disability in that patient, and consider whether we are to sacrifice her ovaries, and consequently menstruation, to cure her of the monthly pain and relieve her of the consequent disability.

DR. E. C. GEHRUNG, of St. Louis, Mo., read a paper entitled

STATUS OF MENSTRUATION.

Menstruation is not, as has been supposed, a special function of the generative organs of women, but only the perverted counterpart of the estruation of the lower animals. This transformation into a monthly "hemorrhage" (menorrhagia) has generally been brought about by the necessities and results of the social, moral, and connubial life of mankind, as well as through the transmission by inheritance of certain debilities of the generative apparatus, and more especially by the erect position and its natural consequences assumed by the human species. This fact being admitted, the profuseness and prolongation of the sanguineous loss is a proof that it is now a physiologico-pathologic condition, predisposing to anemia and all its direful consequences pre-eminently to the nervous system. In the great majority of cases the quantity of blood lost during so-called normal menstruation is an unnecessary and therefore pathologic waste of the very essence of life. It stands to reason that in all cases of depressed vitality this loss should be reduced as much as possible and by all means of disposition. The best means for controlling the waste is the vaginal (not uterine) tampon, applied *secundum artem*. Whenever curettage is not indicated or applicable, and where it has failed in gaining the desired result, the tampon is the means indicated. Chronic and acute inflammations of the pelvic organs are contraindications. Unless the restriction of the waste is put in execution, tonics are useless, because they simply increase the pressure and consequently the waste, while after the repression, or simultaneously with it, they seem to work wonders. The superstitions surrounding menstruation, as well as the misunderstanding of its true character by the medical profession as well as the public, have caused a world of trouble and suffering by the neglect of the necessary advice and treatment.

THE AGE OF FIRST MENSTRUATION IN THE UNITED STATES.

DR. G. J. ENGELMANN, of Boston, Mass., read a paper on this subject.

The period of pubertal development is an important epoch in girl-life, as the crest of one of the three great waves of

functional activity, during which susceptibility to morbid influences is at its highest; much of woman's functional irregularity and suffering is due to neglect at this time, hence the pubertal period claims the attention of the physician as a promising field for preventive gynecology.

To the physiologist and ethnologist the age of first menstruation in the United States, but little studied as yet, is of interest, as the extent of territory, with its variety of climate and the many races presented, offers exceptional advantages for the solution of still open problems as to the causes which influence pubertal development, which hasten or retard the appearance of the menstrual flow.

Over 10,000 observations as to the time of first menstruation of American-born women, many with reference to points never before investigated, here or elsewhere, give him ample material for an authoritative solution of the questions involved. These observations, from his own practice and that of helpful friends, are many, and the identity of results obtained in far distant points, Montreal and New Orleans, St. Louis, Cincinnati, and Boston, vouches for their correctness. Furthermore, they are corroborated by all previous records, a total of 6,000 in such points as these may cover.

The mean age of first menstruation in this country is 13.9 or 14 years, the same in the United States and Canada. Climatic differences in no wise influence pubertal development within the bounds of the North American continent; the American-born, be they of American (14.1), German (14.5), Irish (14.5), or French (13.6) parentage of the same class, attain puberty at the same age in Montreal, St. Louis, or Boston; the negro does not vary (14.05), whether in New Orleans or St. Louis. The greatest variation caused by the extremes of all influences is one year—from 13.5 in the girl of highest refinement and education to 14.5, which is the period for the American-born of the laboring classes, of German and Irish parentage; in other countries the difference between the extremes of social classes is from two to three years.

Refinement, education, city life, nerve stimulation determine precocious puberty; ignorance, poverty, and manual labor retard; social status in itself means very little; heredity has a slight determining influence.

The American-born are more precocious than the women of other countries in the same zone; 14 is the age of puberty in the United States and Canada, 15.5 in the temperate zone of Europe. The native American is more precocious than the American-born of foreign parents, but the latter closely approximate the American of American parentage, even in the first generation.

Racial characteristics fade rapidly away; the age of puberty in Germany is 15.5 to 16, in Ireland 15.3, and for the girl born in America of German or Irish parentage 14.5, in St. Louis as it is in Montreal. The Canadian-French are the only exception, between 14 and 15 in their native land; these alone of all races

are more precocious than the American of the same class when born in this country; 13.7 is the mean age; climate here has absolutely no influence; race very little; mentality, surroundings, education, and nerve stimulation stand out prominently in this country as the factors which determine precocity.

(To be continued.)

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, April 9, 1901.

*The First Vice-President, RALPH WALDO, M.D.,
in the Chair.*

SPINDLE-CELLED SARCOMA IN A VIRGIN TWENTY-ONE YEARS OLD.

DR. A. PALMER DUDLEY.—I have here the correspondence which led up to an operation which was recently performed by me. I was telephoned to come to see this patient in New Jersey on March 26, as follows: "Come prepared to do a hysterectomy." I asked for a brief history of the case, which reads as follows:

"I will give you a brief history of the case for operation Monday next. The patient, a young lady 21 years of age, came to my office last August with a history of metrorrhagia and extreme pallor, slight temperature and acceleration of pulse. Upon vaginal examination I found a large tumor—as near as I can describe it, as large as a child's head in the third stage of labor. This was removed by our local surgeon, Dr. — of —, and successfully, but the patient seemed to improve for a little while only (three or four weeks), but her fever kept up and the hemorrhages returned. The fever was and has been due to sepsis. Then a second tumor sprang up, which grew rapidly, in a month reaching the size of a large orange. This was removed. This rapid growth led me to suspect *sarcoma*, and I told them they should have a microscopical examination made, but they thought it unnecessary. So it went along again for four or five weeks, but with no improvement, the fever, hemorrhage, etc., keeping up. So at last a curetting was done, which we thought would end the trouble, but still the thing persisted. Last Thursday we scraped a little out and sent it to Dr. H. T. Brooks, of the Post-Graduate Hospital, who made a careful examination microscopically and pronounced it to be a large spindle-celled sarcoma. The uterus is quite large, and I think you will have to remove it through the abdomen rather than through the

vagina. We think the disease is still confined to the uterus. I have to keep the vagina tamponed to stop the excessive hemorrhage."

Before I reached the patient she had a frightful hemorrhage and was *in extremis*. I found present the local surgeon who did this work, and I gathered from those present that the girl had been treated for three years for hemorrhage from the vagina, and no examination had been made to test the local condition until she was seen by the physician who sent for me and who called in the local surgeon. A former physician had treated her for anemia, and had advised that her tonsils be removed for the relief of her menorrhagia. The local surgeon said that the growth was a pedunculated fibroid hanging from the uterus, and he removed this. He then came to the conclusion that the second growth was the stump of the fibroid breaking down. My examination was made with great difficulty, because she was extremely tender from the results of the treatment she had been subjected to in their efforts to stop the hemorrhage by the intrauterine and vaginal packs or tampons. I found a dicrotic pulse and the general appearance one would find in those suffering from extreme loss of blood. She was yellow-white. Her breathing was rapid, her pulse 140 and temperature 103°. After a most careful examination I found that I could do nothing but a hysterectomy. I transfused her with 800 cubic centimetres of saline water without using ether, but only cocainizing her arm. This taught me a lesson, and I give it to you for what it is worth. When the 800 cubic centimetre pressure was reached she had clonic convulsions, in which she lay for one-half an hour. Whether this was due to the distension of the vessels of the brain or to pressure I do not know. To me it was very instructive following the transfusion in a weak person. I allowed her to lie until she recovered from her spasms. There was a hemiplegia with only one limb involved. At the end of an hour after this procedure she had apparently recovered. The patient was then placed upon the table, and at once I saw that any manipulation of the parts by way of the vagina would be destructive to life—i.e., she would bleed to death. This growth which I here present was twice as large at the time of operation. I made a rapid abdominal section, clamping the blood vessels. Here on the right side I noticed a growth which penetrated the uterus, involving the broad ligament and surrounding the ureter. I got the uterus out, using the galvanocautery. I took out a small portion of the vagina, and I burned as much of the broad ligament as I could without burning off the ureter. I closed the peritoneal cavity, turning all the structures into the vagina, so leaving a clean peritoneum; I then opened the cul-de-sac for drainage behind the incision. The pelvis was packed with gauze and the patient was returned to her bed with a pulse of 180 and a temperature of 103.5°. This operation was done on March 29. The first morning the patient was doing well

with a pulse of 124 and regular. To-day (April 9) I received a letter saying the temperature of the patient was 102° with a pulse 120. All the gauze had been removed and the patient felt very comfortable.

One point of interest to me is this: In my twenty-five years' experience I have only seen one other case of such rapid-growing, large spindle-celled sarcoma occurring in a virgin 21 years old. What the cause of it was I do not know. According to Dr. Emmet's theory, there was probably some injury to the structures, which in this case cannot be borne out. Another point is that it seems almost impossible that any intelligent man in such a case could go on for over two years treating it without having made a diagnosis. And the third point of interest to me is that, being *in extremis* from hemorrhage, the transfusion supported her sufficiently to allow me to do an abdominal hysterectomy which took nearly an hour; and when she was returned to her bed she was in better condition than she was when I began to operate.

DR. A. B. TUCKER.—I remember a case where I was called in to assist, in which a very large amount of saline solution was used and every ounce of blood was washed out of the woman. It was a case of placenta previa, and the doctor had done podalic version before there was complete dilatation of the cervix, tearing the uterine artery. The saline solution came away with the blood. I think it dangerous to use large amounts where large vessels are ruptured or where there are large bleeding points.

DR. SIMON MARX.—Were there any evidences of hemiplegia after the operation?

DR. DUDLEY.—There were no evidences of hemiplegia before the operation. Possibly if I had kept on I would have finished her, but so soon as I noticed a change in her countenance I desisted, of course, and got only spasm.

DR. G. G. WARD.—Was there any albuminuria?

DR. DUDLEY.—I cannot answer that question, because the woman was bleeding so, and time was so precious that no examination of the urine was made.

SUBPERITONEAL RUPTURE OF THE LOWER UTERINE
SEGMENT DURING NORMAL LABOR; SECONDARY
HEMORRHAGE; RECOVERY.

DR. JOSEPH BRETTAUER.—The previous history is as follows: Patient, age 35, has given birth to three children without any complications; labors were all short and spontaneous. Since birth of last child, nine years ago, patient has been curetted twice, once for incomplete abortion and once for endometritis and menorrhagia, the last about four years ago. Off and on she has been treated for endometritis, retroversion, and relaxation of the vagina. For the past two years no local treatment was required, the patient's condition being very satisfactory. Her periods were regular and normal in amount.

She menstruated last on January 23, 1900. During the early part of pregnancy she suffered a great deal from nausea and bearing-down, but during the latter half she was perfectly well.

Labor set in on November 10 at 8 P.M. The pains were not very severe, but lasted longer than usual. Examination at 10:30 showed that she was still in the first stage of labor, dilatation not being completed, and a rim of the external os still present. The head was presenting, but not engaged, and was freely movable, the amount of amniotic fluid being apparently large. About five minutes after the examination, while I was drying my hands and expressing my opinion as to the time required for the termination of labor, I was called to the bedside just in time to see the head being born with membranes intact. This sudden delivery was caused by a tetanic contraction of the uterus which lasted several minutes, and, as the patient informed me, was extremely painful, much more so than any expulsion pains she had suffered during her previous labors. The placenta was spontaneously expelled a few minutes after the child. The uterus contracted very well and there was no bleeding. When I left her, some time after delivery, she was apparently well and only complained of a slight pain on the left side. The child weighed five pounds.

For the next forty-eight hours the patient suffered from rather severe after-pains, as she pronounced them, which necessitated the administration of a small dose of morphine. Sixty hours after delivery this pain had increased to such intensity and was of such a character that it was deemed wise to give a hot intrauterine douche, which was followed by the discharge of quite an amount of coagulated blood, and entire relief for about eight hours.

During the next twenty-four hours the patient suffered several paroxysms of intense pain in the left iliac region, where, on deep pressure, a slight resistance could be detected.

The patient was now, November 13, placed on the table for a thorough examination, which showed a tear of the cervix up and into the left fornix. There was a large hematoma in the left broad ligament.

On traction at the torn edges of the cervix it was noticed that the uterus, which was displaced toward the right, did not move at all, whereas when traction was made on the intact right portion of the cervix it promptly came down. This I explained by the presence of not only a lateral tear, but also of a circular one, which meant that the whole left half of the cervix was torn from the uterus. There was none or very little active hemorrhage caused by this examination.

After thoroughly washing out the cavity of the hematoma, it was lightly packed with iodoform gauze. No further hemorrhage took place, the paroxysmal pains, however, being of such intensity as to require large doses of opiates to subdue them.

The gauze was removed on November 15 and the cavity

irrigated; this was followed by a severe chill, and the temperature, which had up to now only been about 100° , rose to 104.5° .

The next day, November 16, the condition of the patient was improved, temperature had dropped to 100° , and the pains had grown less severe. Hot vaginal douches and a rather heavy ice bag on the left side was the only active treatment resorted to.

Aside from slight disturbances from the infiltrated breasts, the patient improved daily and seemed perfectly well on November 21; no more narcotics had to be given, the pulse was good, and the resistance on the left side had practically disappeared.

After a splendid night the patient urinated at 7:30 A.M. on November 22, and when the nurse was about to remove the bedpan the patient complained of extreme pain, blanched suddenly, and became unconscious, at the same time expelling an enormous amount of bright, freshly coagulated blood. On my arrival on the scene, about fifteen minutes after the occurrence, prompt and proper action having been taken in the meantime by the nurse, I found the patient conscious, with a small pulse of 130, of an exsanguinated appearance, but without pain; there was no external show of active bleeding.

After injecting about two quarts of saline solution by rectum and subcutaneously, and resorting freely to the usual stimulating drugs, the patient was put on the table, and the cavity, which proved to be very much larger and had extended principally anteriorly, causing separation of the posterior walls of the bladder, was tightly packed with gauze.

As no further hemorrhage took place and the patient rallied from shock within a few hours, no more radical measures were resorted to. The further course of the convalescence was only disturbed temporarily by a most severe cystitis.

When the patient was discharged, about seven weeks after delivery, the pelvic organs showed hardly any traces of what had taken place.

There remained a tear of the cervix not more than half an inch in depth, a scar from the upper angle of this tear into the left fornix, and a slight thickening of the left parametrium, which was not at all tender. The uterus itself was well involuted, somewhat retroposed in the median line, and pretty freely movable. The general condition of the patient was a most satisfactory one.

I report this case to you to-night to have some of the features it presents discussed.

While most lacerations of the cervix in spontaneous deliveries are due to precipitate labor, there certainly must have been some predisposing causes for the extensive lesion in this case, especially when the small size of the child is taken into consideration.

I am inclined to think that the elasticity of the cervical tissue was greatly enhanced by the existence of a chronic metri-

tis and endometritis. It is also possible that, as the patient had been curetted twice already and the cervix forcibly dilated, lesions had been caused, resulting in the formation of scar tissue in the cervical cavity.

Either of these two features, or both combined, are sufficient for a satisfactory explanation of the extensive laceration.

The second point of interest was the gradual formation of a pelvic hematoma by distension of the layers of the broad ligament, without any outward signs of actual hemorrhage either locally or in the general appearance and condition of the patient.

Further, the secondary and most severe hemorrhage which took place twelve days after delivery, and, finally, the treatment applied.

DR. SIMON MARX.—There is no doubt in my mind that there was a subperitoneal rupture of the uterus from the labor. I am reminded of a case seen recently in which the bleeding only commenced after three days. Plugging was done, and upon removal of it there was a frightful hemorrhage, the patient dying in fifteen minutes. I did the autopsy, and I found a rupture in the lower uterine segment with bleeding going on subperitoneally. Upon opening the abdomen there was found an enormous hematoma, extending up as far as the right kidney. In Brettauer's case the primary disturbances were due to a concealed hemorrhage going on. In passing his finger up he may have been in the subperitoneal cavity as well as in the tear in the broad ligament. This should teach a lesson that in cases of tears of this nature it might be necessary to sew up, whether there is any hemorrhage present or not, especially in certain isolated cases, the example of which is before us.

DR. HENRY C. COE.—I am reminded of a case seen while I was connected with the New York Maternity Hospital. It happened to go through the ward, and saw a patient who had been brought from the delivery room three or four hours before, apparently in good condition. I found that she was in collapse, with evidence of internal bleeding. She had had a normal labor and her pulse was good throughout. She was a multipara. I was told that she suddenly became collapsed without external hemorrhage. The uterus had contracted well, and I was puzzled to know what was the matter. Upon examination there was found a deep tear on the left side which extended into the subperitoneal space. The abdomen was opened, and there was found somewhat the same condition as that described by Dr. Marx—an immense subperitoneal hematoma which distended the broad ligament, pushing the uterus to the right side, and dissecting up the peritoneum to as high as the left kidney and diaphragm. The patient was exsanguinated, and she survived but a short time. Examination showed that there was an old tear which had become enlarged and had extended up to the subperitoneal space. I believe this.

is what happens in nearly all the cases—an extension of an old tear from some unknown cause, possibly from too rapid labor or softening of the tissues. It certainly shows that patients may slowly bleed to death into the subperitoneal space without external hemorrhage.

DR. R. L. DICKINSON.—Was there any dulness over the lower abdomen?

DR. HENRY C. COE.—It was masked by tympanites.

DR. CHARLES JEWETT.—I have recently seen a similar case. A physician, who is a skilled and painstaking obstetrician, dilated the uterus with a view of emptying it for the relief of the pernicious vomiting. Much to his surprise, the uterus ruptured, the tear extending up the right side of the cervix longitudinally; above that was another tear about at the isthmus. The finger could be passed into the tear in the cervix; it passed also into the right broad ligament, and again in still another direction into the uterine cavity. The patient was in bad condition for an abdominal section, and, therefore, a posterior vaginal incision was made, as it could not be otherwise determined whether the peritoneum had been torn; the finger could detect no tear. This case was treated by packing, and she made a good recovery. The subsequent history in the event of pregnancy may, of course, be troublesome.

DR. H. N. VINEBERG.—I should like to ask if a hematoma cannot form without a tear in the cervix. We may have a severe hematoma in the vulva from simple pressure, and it has recently been shown that hematoma of the abdominal wall may occur following labor. It seems to me that in some of these cases a slight tear of the cervix may not be the cause of rupture of the blood vessels, but that the blood vessels rupture from the pressure brought to bear at the base of the broad ligament. If a vessel ruptures through a tear of the cervix, there is usually an external hemorrhage. I remember being called to a case a day or two after labor in which a hematoma the size of a large closed fist had formed in the recto-vaginal septum. There was no tear of the vaginal mucosa. The patient had had some fever, but evidently not from her hematoma, but from the retention of the lochia brought about by the obstruction of the blood tumor. I incised the hematoma freely and packed it lightly with iodoform gauze. The fever subsided promptly, and the patient made a good recovery.

DR. PAUL F. MUNDÉ.—I saw a case last May before the birth of the child. The woman was in labor, and a tumor the size of the two fists had formed on the left side; it included the greater part of the pelvic cavity, and it was impossible for the child to be born. The woman stated that she had suffered a sharp pain on the left side several days before. Her family physician found her in labor, although she was ahead of her time, and he called me in consultation. I examined her and found the os dilated so that my fingers could just feel the protruding head of the child above the obstructing tumor in the left side of the cervix. It was a difficult case to diagnose. I diagnosed

an extraperitoneal hemorrhage into the tissues of the broad ligament. The masses felt boggy. The woman had had a number of children. The case was seen by Dr. Edgar just before I saw it, because I was out of town. He had made a doubtful diagnosis, but had advised the termination of labor. I advised against this course, because I thought that if this was done it would increase the tear and the effusion of blood. I advised them to wait and see what would happen. I did not see the case again for several days, but one morning I was called and found the child was born; I was called because the placenta did not come away. The tumor was still there. I introduced my hand, passed the tumor with difficulty, and extracted the placenta. The woman made a good recovery. Some time after her delivery I saw her again and found that the tumor had disappeared. The diagnosis may have been a mistaken one, but I have never been in doubt that it was simply a case of extraperitoneal hematoma, produced probably by a laceration of the scar of the cervix which had been sewn some two years before, a fact of which I knew nothing until the lady called on me some time after the confinement.

DR. A. PALMER DUDLEY.—I should like to call attention to one point that has not been brought out. I have noticed in the report of all cases this evening that injury took place on the left side of the womb. Now, it is a well-known fact that on the left side the veins have no valves. I have but little doubt that during the entire period of pregnancy the structures on the left side are subjected to much more pressure from venous stasis and congestion than on the right side. In fact, the history of lacerations of the cervix up to the present time shows that the left side of the uterus is more frequently torn. I have seen such an injury as described in two instances: one resulted in death, the other was packed successfully. Winckel, in an article, said he found that the veins of the left side of the broad ligament (the pampiniform plexus) had become partially absorbed, and formed channels, immense venous channels. In 9 out of 100 cases he found venous stones, or concretions, in the ligament from stasis of blood. If such is true the chances of rupture are greater on the left side, and rapid delivery would tear some of the veins in the pampiniform plexus and give a concealed hemorrhage. It would distend and dissect the structures in the way that Dr. Coe has described. I wish to call attention to the fact that rapid dilatation of the cervix, a rapid delivery, a miscarriage, etc., would cause this, especially if there be present an old scar the result of previous tear.

DR. J. C. EDGAR.—I have recently had occasion to look up the causes of sudden death occurring during confinement and due to internal hemorrhage, and I ran across several. Dr. Vineberg speaks of the possibility of an extraperitoneal hemorrhage with rupture of the cervix in the broad ligament. Dr. Galabin speaks of a case occurring in London, of an omentum being adherent to a pregnant uterus, and the woman dying

during her confinement from intermittent contractions of the uterus, tearing the vessels and so filling up the peritoneal cavity.

DR. CHARLES JEWETT.—In the case that I referred to the tear was on the right side.

DR. AUSTIN FLINT, JR.—The question of treatment is of the greatest interest to me. I recall two cases, one of which resulted fatally. In this case the hemorrhage evidently continued while preparations for operation were being made, and dissected up behind the peritoneum as far as the kidney on the left side. The patient died before preparations for operation could be completed. The other case was sent into the hospital as a postpartum case. There was a frightful tear involving the vagina, bladder, and extending up into the left broad ligament. The woman got well under treatment by packing and frequent irrigations, and finally made a perfect recovery after two operations had been undertaken, sewing up half of the bladder at one time and the other half at a second operation. It seems to me that the most successful results that are obtained are in cases that have been packed and drained.

DR. R. L. DICKINSON.—In this picture I show you an instance where the whole side of the uterus has been torn through from fundus to cervix, and yet there was but little bleeding. The patient was delivered by a general practitioner, who did not pack, and the patient did not suffer from excessive bleeding, but she died later from a septic peritonitis.

DR. RALPH WALDO.—I remember a case that came to my notice two years ago. The general practitioner was inebriated when he delivered the patient with forceps, and there was an extensive laceration through the entire left side of the uterus, into the broad ligament and peritoneal cavity. She had a most terrific hemorrhage, and was sent into the hospital, where she was packed and drained. A perfect recovery followed, which was unexpected, for she was apparently dying when admitted.

DR. JOSEPH BRETTAUER.—I have little to add to the discussion. In regard to the remarks of Dr. Marx about suturing the lesion, it was out of the question in this case; most of the lesion was beyond the cervix, and the uterus could not be pulled down.

DR. SIMON MARX.—I did not intend to criticise, but only to state that such a procedure should be resorted to if possible.

DR. BRETTAUER.—As to what Dr. Dudley said in reference to the right and left side, I can add nothing bearing upon the subject.

In regard to the treatment, I mentioned the ice bag. It was only when the slightest resistance appeared that I found it was a hematoma. I then used an ice bag filled with mercury, but the patient could not stand this because it was too heavy. Then I mixed the ice with shot—five pounds of it—and from that moment there was no more extension; the hematoma did not get larger.

TRANSACTIONS OF THE SECTION ON
GYNECOLOGY OF THE COLLEGE OF
PHYSICIANS OF PHILADELPHIA.

Stated Meeting, April 18, 1901.

JOHN C. DA COSTA, M.D., *in the Chair.*

DR. R. G. LE CONTE presented a paper on

THE VALUE OF HEGAR'S SIGN IN DIFFERENTIATING
PREGNANCY FROM UTERINE MYOMA.¹

DR. CHARLES P. NOBLE.—So far as my experience goes, I have never seen Hegar's sign present when pregnancy was not present. There is no doubt of the great value of Hegar's sign in diagnosis of pregnancy, and in assisting the surgeon not only to escape from the particular error referred to by Dr. Le Conte, but from other errors. A good many times the abdomen has been opened with the impression that a tumor was present in the pelvis associated with the normal uterus, when, as a matter of fact, the supposed tumor was the pregnant corpus. Often an enlarged cervix has been mistaken for the normal uterus, and the pregnant fundus for a tumor supposed to have no connection with the uterus. The knowledge of this will protect the surgeon against this error more frequently than from error in case of myoma. As regards the particular use of Hegar's sign, to which Dr. Le Conte called attention, I have never met a case in which I personally felt much question as to whether the condition was that of pregnancy or the presence of a myoma. Usually when the tumor reaches the size of four months' pregnancy (and Hegar's sign is not of much value before the fourth month) there are other evidences of pregnancy.

In the months earlier than the fourth month there is another sign of pregnancy of the greatest value, one upon which I have written two or three papers—the characteristic shape and feel of the uterus. The non-pregnant uterus is flattened from before backward, and it has a pretty solid “feel” to the fingers. As the ovum grows, very soon the pregnant uterus has a semi-cystic feel, made out as early as the sixth week. Another part of the sign is that as the ovum grows the cavity of the uterus must necessarily enlarge antero-posteriorly as well as laterally, and as a result the uterus juts out over the cervix in front and behind in a characteristic way. Some one has likened that condition to the relation of

¹ See original article, p. 46.

the neck of the jug to the belly of the jug, and called it "the fat-belly-jug sign." That particular fact, together with the semi-cystic feel of the uterus, is a most valuable sign of early pregnancy. With smaller myomata it would be of much more value in differentiation than Hegar's sign, which is only characteristic after the fourth month.

DR. E. P. DAVIS.—In order to understand the question perfectly, we may revert to the recognized changes in the uterus in pregnancy, and the valid sign of pregnancy.

The cervix is held by the majority of observers not to be altered in pregnancy, not shortened, not lengthened. Hence the condition of the cervix remains the same throughout. Any sign, therefore, of anatomical character must be independent of the cervix.

The development of the lower uterine segment depends upon the development of the fetus. The function of the lower uterine segment is to determine the presentation of the child.

Again, we have the sign to which the younger Browne has called attention—unilateral development of the body of the uterus. This applies to early pregnancy, when, as the ovum lodges in one or other side, we have up to the third month the uterus larger on one side.

We have the intermittent contractions of the uterus, which is a sign of considerable value. In the normal uterus there can be no question of the development of the lower uterine segment. Hegar's sign must be held to be present in all uteri developed under normal conditions. If this can be obtained it must be held of decided value in the diagnosis of early pregnancy.

There are some conditions in which pregnancy will simulate fibroid tumor. One of them is pregnancy with more than one fetus. The abdomen has been opened by skilled observers for multiple pregnancy, supposing that a fibroid was present. The operator has been misled by the different members of the fetus. There has been a thin-walled uterus, and the parts of the fetus have been mistaken for fibroid nodules. Also, in those imperfectly developed uteri in which interstitial pregnancy occurs or pregnancy in one cornu of the uterus, fibroids are simulated.

Taking all these conditions into consideration, I believe that we can, from the standpoint of obstetric observation, conclude that in women who have been in good health before the pregnancy has proceeded without any evidence of malnutrition or more development of previously existing pelvic disease, softening of the lower uterine segment is bound to be present, and is the most positive anatomical sign of the alterations of the pregnant uterus which we find. It does not, however, prove the existence of a living fetus. One of the most perplexing conditions is that in which the pregnancy proceeds to the fourth or fifth month, when the fetus dies; you have the anatomical signs of pregnancy, and the failure of the uterus to increase in size, and the gradual absorption of amniotic fluid.

Another puzzling condition, and which may be mistaken for

pregnancy, is that in which the fetus is the site of malignant growth of sarcomatous nature. Some of the physicians of this Section would recognize the case of a patient who went the rounds of the Eastern States about a year and a half ago with a tumor midway between the pubes and umbilicus. The case was diagnosticated pregnancy. It finally came to operation, and a metastasis was found in one of the ovaries. Again, a woman, pregnant illegitimately, secured a note to a prominent physician in which the statement was made that the woman had a malignant growth and that the womb must be promptly removed. The patient was thought to have sarcoma, but upon further examination was found to be pregnant with a living child. By the use of a steel-boned corset the child had been forced into the pelvis. All the symptoms of pregnancy were obscured, and a diagnosis of possible malignant tumor of rapid growth had been reached.

From my own experience I would say that Hegar's sign in women having no lesions of the pelvis, and with a fair physical development, is a positive sign of pregnancy. The sign can be elicited by examination under ether, whether the abdomen be opened or not, in almost all cases. I would recommend the conclusions which Dr. Le Conte has reached in his paper.

DR. R. C. NORRIS.—The practical value of Hegar's sign is that it helps us to make an early diagnosis of pregnancy, *i.e.*, it differentiates a pregnant from a non-pregnant uterus. Its value to differentiate early pregnancy from other intrapelvic affections, such as a myoma, is not so great. Since my student days I have spent many hours working in various clinics, and I have always made a point of studying this sign as much as possible. It was a long time before I could feel any assurance in making a diagnosis of pregnancy by eliciting this sign. To the man who makes the casual vaginal examination it will be of no real value, for it depends upon a trained touch in examination. It is difficult to elicit in a woman who is stout and has thick abdominal walls; in such a patient bimanual examination will not suffice. In a woman who is relaxed this is the best method of examination. In women in whom the abdominal walls are thick, introduction of the index finger into the rectum and the thumb into the vagina will elicit it. It is sometimes necessary to administer an anesthetic to accomplish the diagnosis of pregnancy by Hegar's sign. Its real value, to my mind, depends upon its association with other signs—namely, the changes in the shape of the fundus and body of the womb, the unilateral enlargement of the womb, and particularly with the intermittent uterine contractions. My experience has been that the value of the sign is increased when found associated with those changes, and lessened if one or more are absent.

The absence of changes in the cervix during pregnancy, referred to by Dr. Davis, is, no doubt, theoretically correct. There is no elongation of the cervix, but there is a softening and infiltration, which can be elicited by the sense of touch, which has an unquestionable diagnostic value.

Regarding the differential diagnosis between a small and soft myoma and an early pregnancy, I have never been able to find the same soft, yielding lower uterine segment in the former as we find in early pregnancy, associated with the uterine contractions and unilateral enlargement. To sum up, I would say that I have found Hegar's sign of great value when associated with the enlargement of the body of the womb peculiar to pregnancy, and with the intermittent contractions so characteristic of pregnancy. When these signs are elicited several times, while the patient is under ether, the diagnosis is relatively certain.

DR. LE CONTE (in closing).—I desired to know whether the sign was or was not a positive one of pregnancy, and whether it could occur in the presence of tumors. The discussion this evening leaves me still in doubt.

DR. A. ERNEST GALLANT, of New York, read a paper on

THE CORSET FOR MOVABLE KIDNEY.¹

DR. JOHN B. DEEVER.—I have listened with great interest and profit to Dr. Gallant's remarks. It is not necessary to deal with the subject extensively, but more particularly with regard to operation versus mechanical apparatus.

In palpation of movable kidney I have had occasion to adopt the method Dr. Gallant speaks of, and can indorse what he says. The position I adopt when there is difficulty in making a diagnosis is to have the patient lie on the opposite side, with the legs strongly flexed; have her breathe down as deep as possible and hold the breath. I find that will displace a movable kidney which is otherwise difficult to diagnosticate. I seldom examine a patient in the sitting posture. The doctor is correct in speaking of the variation in the symptoms in proportion to the degree of mobility.

The question of jaundice has interested me. I recently called attention to that symptom in connection with movable kidney. It is a question whether the jaundice is due to pressure upon the common duct. I believe the condition is due indirectly to a kinking of the common duct by traction.

I recall one case of hematuria, which, however, afterward cleared up, and the patient is still living and there has been no return.

The question of differential diagnosis is very extensive. I can readily see how one can be misled in a case of hydrops of the gall bladder. I once operated in such a case and overlooked the movable right kidney. It is a question whether, under all circumstances, we would be able to differentiate between the two conditions.

The question of treatment is the most important. Personally, I have had little success with appliances. As most doctors, when the patient is averse to an operation I am inclined

¹ See original article, p. 1.

to advise an appliance. I cannot indorse all that Dr. Gallant says in regard to fixation of the organ by operation. Operations are not as successful as it is claimed, or we would not have so many different operations for the condition. I have gone through the number to a great extent, and for the past two years I have only fixed the kidney with gauze. As far as I have been able to follow the cases, there has not been one to become displaced. I frequently have patients consult me who have been operated upon by other surgeons, and I suppose other surgeons have the same experience with my cases.

I have the greatest objection to the suture method. Dr. Taylor will probably recall the case of a clergyman in which the kidney was transfixed with sutures. The operation was done under aseptic precautions and the man made an afebrile convalescence. Within six months a tumor developed in the region of the organ, and the man was operated upon in New York for pyonephrosis. I have since learned of two cases in which the sutures were used and which subsequently required nephrectomy in order to save the patients' lives. I know from experiment that the suture will not hold in the kidney. This has driven me to the use of the gauze, with which I have been fairly successful.

The use of the corset strikes me very favorably. I have at present a lady under my care to whom I hope to recommend the use of the corset.

DR. CHARLES P. NOBLE.—I have listened with much interest to the paper of Dr. Gallant, particularly as it brings up one aspect of the subject with which I am not personally familiar. There were a number of points noted in which my personal experience has been somewhat different from that of Dr. Gallant. I will ask the doctor what he means by "symptomatic movable kidney."

DR. GALLANT.—This term is used by Edebohls to describe a kidney which is movable and produces any of the symptoms which we recognize as due to the mobility of the kidney itself; and those were the symptoms which I designated as present in the cases which we had under consideration. Two or more were those that led me to investigate the condition of the kidney.

DR. CHARLES P. NOBLE.—I think that the majority of movable kidneys produce no symptoms at all. I consider movable kidney more frequent than has been laid down by the reader of the paper. For one year I examined every woman who consulted me, and every fifth one had movable kidney. As to the frequency with which the right and left kidneys are loose, I have never seen but one case in which the left was loose when the right was not. The right kidney is loose about ten times when both are loose once. In my experience there is no relation between the extent of displacement and the symptoms. Very frequently a little displacement gives the major symptoms. The proper treatment, in a case with marked symptoms with but little movement, is to be put to bed and to be given

the rest cure. This will cure without operation or apparatus. In my experience the frequency of complicating appendicitis has not been so great as that laid down by Edebohls. I have seen a loose kidney in fat women, but my experience is that in the majority of such patients, unless the abdominal wall is much overstretched, there is little chance for the kidney to become loose.

My experience in diagnosis differs from that of the speaker and of Dr. Deaver. I find it much easier to make a diagnosis with the patients standing, but leaning over slightly and supporting themselves on a table. I have also examined with the patient lying on the back, but should say that it was ten times as easy to make a diagnosis with the patient standing. Another advantage of the erect posture is that gravity, as well as the inspirations of the patient, tend to force the kidney down. Also, it is much easier to estimate the extent of the displacement.

As to treatment, like Dr. Deaver I have had little experience with apparatus. I have operated upon patients who have worn apparatus unsatisfactorily. So far as the older forms of apparatus are concerned, I do not know of a single one that is satisfactory. It is evident that the principles laid down by Dr. Gallant, with reference to the corset he shows removing the pressure, are an advance over the one formerly used. It is not, however, universally satisfactory, because this winter I have had a number of patients consult me for loose kidney after having worn the corset of the present mode.

Concerning operative treatment. While I have done nephrorrhaphy fifty or sixty times, like Dr. Deaver I cannot follow all the cases, but in the majority of cases the result has been permanent. The technique which I have used has been that of the suture and I have not had the disagreeable effects referred to by Dr. Deaver. My first three nephrorrhaphies were drained. All of these suppurated, and since then I have not drained and have had but one suppuration. In the use of the suture I introduce it in such a way that it makes a sling of the fatty capsule, so that the kidney rests in a sling of fatty capsule.

I should be very glad if Dr. Gallant will tell us in his closing remarks the percentage of cases in which he has seen a cure take place by apparatus.

In severe cases in which the displacement causes torsion and there is danger of renal degeneration, I think operation should be done to prevent destructive changes in the kidney itself. In the minor cases I think operation should be attempted only for the relief of symptoms which cannot otherwise be relieved.

DR. B. C. HIRST.—I have nothing to add except a suggestion which I have found of some little benefit. I have for some time been in the habit of trying the systematic use of the Trendelenburg posture in cases unsuitable for operation, united with the application of the corset in that position.

DR. JOHN B. SHOBER.—I have listened with much pleasure to Dr. Gallant's instructive paper, and was particularly interested in that part of it which dealt with the treatment of movable kidney by means of the corset. I cannot agree with him that a corset such as he describes is altogether rational or desirable, as it seems to me that the constriction at the waist necessary to hold the kidney above it only exaggerates one of the chief causes of movable kidney and tends to force the intestines downward and forward, thereby increasing the enteroptosis which so frequently complicates these cases.

Absorption of the perirenal fat is the exciting cause of movable kidney, or, to put it another way, a kidney will not prolapse provided the perirenal fat is intact. Hence anything which tends to cause such absorption, or which acts in such a way as to prevent the formation of perirenal fat, is irrational in the treatment of this condition. Tight lacing or the im-



FIG. 1.

proper use of the corset is admitted to be one of the principal causes of movable kidney, but the manner in which it acts is not, as many suppose, by a mechanical forcing of the kidney downward. I do not believe it is possible to press a kidney out of position in this way. Tight lacing undoubtedly forces the intestines downward and forward, and they in turn tend to drag the stomach, the liver, and the kidneys after them, causing also retroversions and prolapse of the uterus and adnexa; but the principal manner in which tight lacing produces movable kidney is by interfering with and modifying the superficial and deep circulation in the loin, thus bringing about a gradual absorption of the perirenal fat. This once accomplished, the kidney falls forward over the fold of the peritoneum and follows the general enteroptosis. The point I wish to make is that, even in the presence of enteroptosis, a kidney will not become movable unless the perirenal fat is deficient, and that

tight lacing, being one of the causes of its absorption, tends to exaggerate the condition. Another cause for movable kidney, and one which I have not seen mentioned, is, I think, the fre-

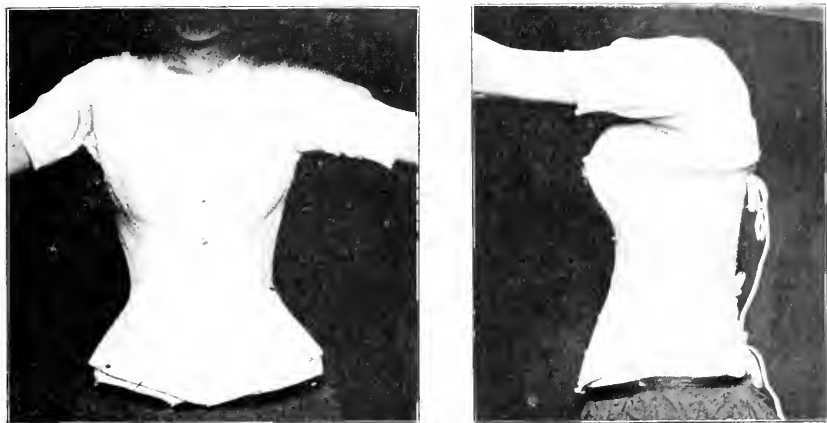


FIG. 2.

quent distensions of the bladder which women are notoriously subject to. I believe that frequent repetition of this condition causes, by *vis-a-tergo*, a mild congestion of the kidney and an interference or stasis of the perirenal circulation, which in



FIG. 3.

turn would bring about a gradual absorption of the perirenal fat and thus allow a ptosis of the organ.

I now wish to show a corset which has given me much satis-

faction in the management of these cases. It was first designed by Dr. Morris J. Longstreth, of this city, for the purpose of giving support in cases of pendulous abdomen, and its applicability has been enlarged by him to many other conditions. I first began to use it some years ago in cases of large women after abdominal section, and found that it gave greater comfort and support than any abdominal belt I am acquainted with. For the past five years I have used it in cases of movable kidney with satisfaction to my patients. While I do not claim that it will hold a kidney in place, it gives more relief and comfort to these cases than any belt or pad. It is simply a broad canvas belt sewed to the lower edge of the patient's corset in such a way that when buckled behind the belt grasps the pelvis between the great trochanters and the anterior-superior spines of the ilium. The belt thus comes slightly below the symphysis pubis, and, when properly attached to the corset, well supports the lower abdomen; at the same time it straightens the bony pelvis, which has a tendency in these cases to tilt forward and thus favor prolapse of the abdominal organs. It is important that the corset should be so laced that the greatest pressure is made over the sacrum and thorax. This is best accomplished by knotting or tying the lacings at the waist line, so as to prevent them from being drawn beyond a certain point. When this corset is properly applied the pelvis assumes a more horizontal position, the vertebral column is straightened, the whole abdominal wall is well supported, thus in a general way tending to overcome ptosis of the abdominal contents, and no undue pressure is made at the waist line, which is the great fault of all kidney belts and pads. The illustrations shown on pages 102 and 103 explain themselves:

No. 1 shows the figure of a patient who has worn a faulty corset.

No. 2 is the same patient wearing the faulty corset.

No. 3 is the patient wearing the improved corset.

DR. J. M. BALDY.—I am not much in sympathy with the discussion of to-night. Like other fashions, I believe the corset for movable kidney is a fad. In the first place, the whole subject is merely a matter of individual judgment. All kidneys are movable. Any kidney which is not movable is a pathological kidney. The question of what is floating and what is not is purely relative. I can understand why there are few such cases in fat women. They are much harder to examine, and the kidneys are not so easily found. They are just as movable, however, if you put your hand inside the abdomen, as I am frequently able to do at operations.

As to methods of examination, I have found the erect posture most unsatisfactory because of the muscular tension.

The symptoms are largely neurasthenic and gastro-intestinal, and can most often be explained by other conditions than that of movable kidney. I have generally been able to clear up the condition without any treatment directed toward the kidney. I cannot see how any mechanical appliance can

have any effect whatever. When we remember that the corset is applied to the abdominal wall, and that the kidney is fixed to a part which cannot be reached through it to the back, it seems to me that the corset as a remedy must be unsatisfactory. With the anatomical relations I cannot conceive that any fixation can be given the kidney, unless it be by lessening the intra-abdominal space, and that would be far from sufficient. I have never had any sympathy with the outcry against the corset. I do not believe it ever did harm, except in the extreme lacing, and it is the exception to-day to have the corsets laced tight. The harm done is to the back muscles; they are practically in a splint and are, of course, weakened.

In the matter of operations, from my own standpoint I would believe that the suture method was the least desirable. It is, however, a matter of technique, and the man who has acquired the most skill in one method will get better results with that than from any other. I have grave doubts whether fixation does do good in any of these cases.

DR. JOHN G. CLARK.—In the majority of cases of movable kidney the important factor in the case, so far as the symptoms are concerned, is that of general enteroptosis rather than of movable kidney. Hence, relief through the use of the abdominal bandages or corsets comes from the support of the abdominal wall rather than from the immobilization of the kidney. As to the operative treatment of movable kidney, I am inclined to be rather conservative, and I agree with quite a number of the speakers that a movable kidney, unless giving very serious symptoms, would better be let alone. A recent research upon the blood vessels of the kidney by Brödel has led him to suggest a new suture for suspension of the kidney. Clinical experience has shown that the strain upon the ordinary suspension suture, when the patient assumes the upright posture, tends to pull them out, and it is therefore suggested by Brödel that the sutures be inserted on the posterior surface to avoid the large blood vessels, and in a triangular manner, as follows: The short curved needle is passed down into the kidney and then brought out, is again reinserted and brought out again, and again a third time, forming a triangle which acts as a snare around the bands of connective-tissue stroma. The two ends of this triangular stitch are tied into the dorsal muscle. He finds this suture bears a much greater weight than the one usually employed. I agree, however, with Dr. Deaver and others that ultimately the suture does not hold the kidney, the adhesions which form between the dorsum of the kidney and the dorsal muscles being the real suspensory or fixation medium.

In the use of the corset as described by Dr. Gallant, I should think its value would depend upon the figure of the woman to whom it is to be fitted. In a lean, spare woman who is flat from the chest down, in my experience it is difficult to get a suspensory belt or bandage which will press on

the abdomen, because it will ride up on the hip bones and leave the space over the abdomen clear. In some instances it has been necessary to have semilunar-shaped pads made to fit beneath the bandage, in order to exert pressure upon the abdominal wall. This type of case, which is perhaps the most frequent, it seems to me would be rather difficult to fit satisfactorily with corsets as described by Dr. Gallant, for they do not have the beautiful and shapely torso as depicted in his diagrams.

DR. GEORGE ERETY SHOEMAKER.—I think we owe a debt of gratitude to Dr. Gallant. He has presented the subject from a side not always discussed. It seems to me, however, that there are a number of patients presenting pathologically displaced kidneys who cannot always wear the corset or who can wear no corset, and they must get some other form of relief. There is the thought, too, that only as long as the present fashion lasts will the flat-front corset be obtainable or satisfactory to women. We will still have a number of cases which will demand operative relief. One reason why there are so many measures suggested is because the operation is comparatively new and the best methods are not yet developed.

In regard to the use of gauze packing kept in long enough to produce inflammation, advocated by a few surgeons, it seems to me that the only use of this packing is to produce adhesions. It is probable that the suture operations, if properly done, produce almost as extensive adhesions. If the fat is thoroughly displaced from behind and below the kidney, and if the kidney is thoroughly freed on all sides, an extensive amount of adhesion is produced without the gauze, which tends to produce an infected wound. A very important part is this proper displacing of the fat.

Appliances, in my experience, have little effect upon the floating kidney, especially when the type is extreme. In many of these cases it is the enteroptosis which produces most of the symptoms, and it is in such cases that the corset is likely to give relief.

In diagnosis the erect posture is the one preferred, but the patient must lean forward on the hands and the clothing must not threaten to fall off. Hematuria is a point of some interest. It is not sufficiently impressed upon us that hematuria may be a symptom of floating kidney. It has occurred to me to see it repeatedly where there were no other lesions except those secondary to displacement.

DR. GALLANT (closing).—I feel much gratified at the discussion and will try to answer some questions. I had to turn over so many leaves of the manuscript that many questions which have come up in the discussion were not dwelt upon in the part of the paper read.

I would like to ask Dr. Baldy how many times he has put corsets on a woman for the actual relief of movable kidney. If the doctor will answer that I will feel more at liberty.

(Dr. Baldy replied that he had not put them on at all.) I believe that is the reason the doctor condemns the use of them, because he has never tried and proved their use and never studied the actual effect of the corset when on. He has never studied it day after day and in some cases for five years, seeing it at frequent intervals. I have noted the changes of lacing the corset an inch or more at one point or the other, and in that way I have learned to adjust a corset. It cannot be put on the first time as it should be worn; nor can you have a patient buy a corset and put it on in such a way that it will cure the condition. I have been working at the subject for seven years.

I do not know how many cases have been cured. I have gone over 1,900 cases. The paper represents 1,000 cases as they come to the hospital.

As to the frequency of the occurrence of movable kidney, there is a wide difference in opinion. Alhehand takes the ground that every kidney is movable normally from three to five centimetres. Another says five out of seven of all women have movable kidney. Edebohlssays that 20 per cent have movable kidney. Then the majority of examiners say that four to five per cent of all women have symptomatic movable kidney. Dr. Baldy has never seen a case of real movable kidney. The suffering that a woman can go through that is relieved within an hour after the kidney is put up is something astonishing. Any man who ever saw a case of real movable kidney will not refute that.

I only referred to an examination in the recumbent position as a simple method in case of suspected movable kidney, not as a means of making a definite diagnosis. The most favorable posture, I find, is to have the patient lean over a chair. Another plan is to have her sit down on a chair and rest the elbows on another chair.

In one case mentioned, that which confirmed the diagnosis of movable kidney rather than that of gallstones, there was an empty gall bladder. Had gallstones been in the duct the bladder could not have been empty.

The use of the stomach tube is essential in some of the cases. Women with chronic gastritis for years, due to the movable kidney, will not be cured at once by the putting up of the kidney. The organ is out of order and we have to apply the proper remedies.

It has been said that every man who opens the abdomen should put his hand in and examine the kidney. No man can tell whether the kidney is symptomatic when the patient is under ether. We do not find movable kidney after death, because there is postmortem hardening of fat which holds the kidney in place.

The knee-elbow position I always recommend, and also use it for diagnostic purposes. I have never been able to make out a movable kidney when the patient stands perfectly erect.

As to a special corset, I have been asked why I never

invented such a one. I have had letters from various sections, from cranks and corset manufacturers, from parties who invented corsets, and I thought it would be a profitable business to start in myself. I have not done so because perhaps but a small percentage of those who suffer from movable kidney could afford to have a corset made to order. Personally, I have only once put on a corset made to order. I have sent the patients to the shops and told them to get a long-front corset and a corset two sizes too small. If you do not learn how to lace a corset, do not try to put it on, because you will fail.

THE RELATIVE MERITS OF THE DIFFERENT METHODS OF
PERFORMING PANHYSTERECTOMY IN MALIGNANT
DISEASES OF THE UTERUS.

DR. B. C. HIRST.—With the exhibition of this specimen of malignant adenoma of the uterus I wish to elicit a discussion on the four methods of removing the uterus: by vaginal hysterectomy, by abdominal hysterectomy, and by combined hysterectomy, beginning by the abdomen and ending by the vagina, and *vice versa*.

My own preference is for the last mode of operation. To no one of these plans, however, can one adhere rigidly without exception. The last method has several advantages. It enables one to make a clean and neat operation in every way. It is possible to inspect the pelvic glands and to remove them if necessary. The operation has none of the disadvantages of the vaginal hysterectomy, and the woman's convalescence is much more satisfactory in every way.

Vaginal hysterectomy for malignant disease had its origin when the technique of abdominal work was not as good as it is to-day. Therefore, if there were no other advantage, vaginal operations gave better results than abdominal operations yielded then, but that is not the case now.

The specimen is that of a uterus removed from an old lady 66 years of age, for adenocarcinoma of the endometrium.

DR. J. M. BALDY.—The method which Dr. Hirst speaks of as one of preference is the one which we almost all use. I use it myself in very stout women. In those patients it is very difficult to make complete removal from below or from above alone.

As to removing the pelvic glands, I do not believe the man lives who can remove them thoroughly by the operation proposed, and if not thoroughly removed the attempt is useless. We hear a great deal about removing the pelvic glands in hysterectomy, but I have the first man yet to demonstrate to me that he can do it (in reasonable enough time to warrant the attempt and save the patient), and I challenge the demonstration.

DR. JOHN B. DEEVER.—The subject of the combined abdominal and vaginal operation is interesting to me. An advantage in the abdominal route is that we can follow out

the uterine arteries. I believe there is risk of infection when you do first the vaginal operation and then resort to the abdominal route. The danger is lessened, of course, if the operator changes his gloves.

It is a question of selection of cases. I cannot see any advantage in the vaginal operation for carcinoma of the cervix. I believe that carcinoma of the cervix, in the majority of cases, had better be let alone. So far as radical operation is concerned, I think as much is promised by the thorough use of the cautery and curette. I have known women to live four years after such treatment, but not so long after abdominal hysterectomy for carcinoma of the cervix. Carcinoma of the fundus of the uterus is a proper condition for vaginal hysterectomy. I have done this operation in from five to seven minutes by the clamp method. The abdominal operation takes half an hour.

So far as dissecting out the glands, that can be done, but it requires a great deal of care. I believe comparatively few men are capable of taking out the glands. After they have been invaded there is little use, however, in dissecting them.

As to the question of infection, I believe it is possible to infect a patient in another part of the body, and therefore the utmost precautions should be taken.

DR. C. P. NOBLE.—I think the proper method for cancer of the uterus depends upon the character of the case. The method used by Dr. Hirst in the cases described is very satisfactory. In my experience it has given beautiful results. All the patients are living, with but one exception. The prognosis is very good by either the vaginal or combined operation.

On the other hand, we have little hope of the cases of cancer of the cervix, whatever operation is used. I did think I had cured one case, because the patient lived four years. She afterward developed cancer.

I have been much impressed with the statement that much better results were secured if the cautery were used to separate the cervix from its attachments. I recently had a patient who was a typical example of the advantage of the use of the cautery. I operated at the earnest request of the family doctor. Abdominal operation was attempted, but the patient collapsed. The uterus was removed, but the cervix left in. I concluded that the only feasible way to remove the cervix was to burn it out. From the number of good results from the cautery I am inclined to its use when the cervix is involved.

TRANSACTIONS OF THE CINCINNATI
OBSTETRICAL SOCIETY.

Meeting of March 14, 1901.

The President, J. M. WITHROW, M.D., in the Chair.

GALLSTONES.

DR. HALL.—The patient is a married woman about 66 or 67 years of age. About three years ago I operated upon her for a rapidly growing ovarian cyst, somewhat larger than an adult head, which she had first noticed about three or four months before. She was a spare woman, not tall, and did not weigh more than one hundred and ten pounds. She said she had lost presumably ten or fifteen pounds, and failed gradually in strength, and suffered more pain than usual. Fluctuation could be obtained over the whole tumor, which seemed to be more fixed to the right side of the abdomen. Operation revealed an ovarian papilloma fixed in the pelvis. When tapped, only a small portion of the tumor could be emptied, because it was composed of a number of small cysts. In liberating the tumor from the pelvis there was quite free bleeding from adhesions. At two or three points the tumor had broken through its capsule. In one place it had apparently surrounded a coil of the ileum. In trying to liberate it the intestine was torn across and it was necessary to remove a section of the ileum near the stomach. The patient convalesced slowly and enjoyed as good health as usual. About a year ago she began to suffer from symptoms of indigestion and attacks of pain in the epigastrium, and developed a tumor in the region of the gall bladder, a hard mass that varied in size. She had two or three frightful attacks of pain simulating gallstone colic, and was jaundiced for several weeks. When she finally came to see me the jaundice had disappeared. She had a palpable lump about an inch and a half in width and two inches long. Knowing her previous history, I considered the possibility of malignant disease. I advised exploration, and told her that if it was cancer we would sew it up and she would be none the worse for the operation. I found the gall bladder contracted over two large gallstones which are almost one inch in diameter. There was no fluid in the gall bladder. The operation was performed seventeen days ago. She has had an easy convalescence, and there was no sign of malignant disease in the abdomen. I did not know until the time of the second operation that when she was between 30 and 40 she suffered from what was called bilious colic. I presume it was gallstone colic. She had had no pain afterward.

DR. WILLIAM GILLESPIE read a paper on

OCCIPITO-POSTERIOR POSITIONS OF THE VERTEX.¹

DR. E. GUSTAV ZINKE.—I cannot subscribe to the theories Dr. Gillespie has advanced. He has opposed himself to the mechanism of labor as it is taught to-day, and makes an effort to obliterate the work of the principal writers and teachers since the day of Naegele. It is not likely that every one of them should have fallen into the same error, that one copied from the other. The essayist has taken altogether too serious a view of the management of so-called occipito-posterior positions of the vertex. Under ordinary circumstances, when there is no disproportion between the child and the pelvic passage, if the case is managed properly it is, after all, not a very difficult problem to solve. There are two principal reasons why most men have trouble in the management of occipito-posterior positions: First, they fail to make an early diagnosis of that position. Second, they do not possess a perfect knowledge of the mechanism of labor. It does not matter so much if we do differ in our opinion as to what produces flexion or extension, or what brings about rotation, so long as we do know that one or the other must occur and recognize them when they take place. The diagnosis of an occipito-posterior position is, in my opinion, very easy in the majority of cases, and may frequently be made by external examination alone. It is not necessary that we should feel every part of the child. If we can locate the fetal heart and movements distinctly, and recognize that the vertex is presenting, we can usually determine what position the child occupies *in utero*. In addition to this we have the well-known fact that the head selects for its passage through the pelvic canal the right oblique diameter. Another is that the uterine obliquity is usually from left to right, which favors the entrance of the head into the right oblique diameter. I agree with the essayist that, in the vast majority of cases, the head is in a state of flexion from the beginning, and, if not, the flexion is usually brought about when the head comes in contact with the incompletely dilated os. But this alone is not the cause of the flexion. The anterior and posterior levers of the head have much to do with it.

My management of these cases is as follows: If the head, either during the first stage of labor or at the end of it, is at or past the brim, and the anterior fontanelle is not within easy reach, I am satisfied that the head is well flexed, and it does not matter whether the head is in the transverse or the right oblique diameter, or any other position. Flexion is of the greatest importance. One digital examination is sufficient to determine that. After, say, half an hour or an hour, when a number of pains have occurred, I make another examination to assure myself that descent has taken place. If the head.

¹ See original article, p. 57.

has descended and there is marked downward progress, the occiput will rotate anteriorly. It does not matter whether it is the promontory of the sacrum, according to Hodge, or the sacral spine, according to Leishman, or the pelvic floor alone, or the three together, that bring about the forward rotations of the occiput, or whether it is the condition described by the essayist. All I know is that when the head is well flexed and the floor of the pelvis has been reached by the occiput, the direction of descent will be changed, the occiput is pushed forward, the sinciput moves upward and backward, and anterior rotation is but a question of time.

If, at the end of the first stage, the head is partially extended, one can feel the anterior fontanelle with more or less ease; and unless flexion of the head is brought about, the forehead will enter the pelvic cavity in advance of the occiput and the latter will rotate into the hollow of the sacrum. Here it is perfectly proper, after the membranes are or have been ruptured, to rotate the head after the manner of Smellie, Velpeau, Tarnier, or Parry.

When we come upon the scene after the forehead has been driven down into the pelvis and possibly impaction has taken place because of the increased extension of the head, the management is altogether different. There is no necessity for the application of the forceps at the superior strait simply because the occiput is posterior. I would under no circumstances sanction the application of the forceps and rotation of the head if it were impacted in the pelvic cavity. The mere fact that the occiput rests posteriorly is no indication for the use of forceps. When the head is impacted, the application of the forceps and efforts to produce rotation of the head will result in serious damage to the soft parts of the mother. There is no necessity for exposing both mother and child to the dangers of such procedure. If you are able to rotate the head in the pelvic cavity with the forceps, it was never impacted, according to my understanding of this term. In many so-called cases of impaction the introduction of the whole hand into the vagina, according to Smellie, so graphically described by Parry in his American edition of Leishman, will answer better than anything else.

DR. PALMER.—How far down may that be done?

DR. ZINKE.—Anywhere within the true cavity of the bony pelvis.

DR. STANTON.—Suppose it has escaped through the os uteri?

DR. ZINKE.—Even then you can lift it up; it is no contra-indication, as it would be if version were contemplated. When there is delay, when arrest of the head is threatened and you wish to apply the forceps (and the forceps should only be applied to a head that is still movable), it is perfectly proper to employ the instrument as described by the essayist. If with traction the head rotates, permit the forceps to follow. This is usually the way rotation is accomplished by the use of forceps when flexion of the head exists. Many times, when the

forceps are not properly applied, they will catch more of the anterior than the posterior part of the head, and the very thing you do not wish, namely, extension of the head, is thus brought about. Impaction of the head is often produced in this way. I do not believe in Penrose's teaching, the application of forceps in persistent occipito-posterior positions when the head threatens to become impacted. I do not object to the application of forceps when the head is movable and there is delay. McDonald, Tarnier, and the late Parvin warn us against too early interference, manual or instrumental, in these cases. They do not hesitate to say that, in nearly all of those cases in which we succeed with the hand or the forceps in bringing about anterior rotation of the occiput, it would in all probability have occurred of its own accord.

DR. W. H. WENNING.—The preparation of the paper read this evening required profound study and observation. For this reason it is to be regretted that the essay has been criticised in this disparaging manner by the first speaker, who has evidently taken the mechanism of a case of occipito-posterior position in which anterior rotation occurs, and he correctly assumes that in the majority of instances it does so. The essayist, however, discusses those cases in which anterior rotation does not take place, and proposes a method by which he wishes to prevent the occiput from remaining in the posterior position. A persistent occipito-posterior position offers greater difficulties in a certain number of cases than any malpresentation. Any method which will avert this possibility should be listened to with patience and respect. There are more instances of original occipito-posterior positions than we are aware of. Ordinary practitioners of obstetrics (among whom I include midwives) frequently do not recognize these positions because anteriorly anterior rotation has taken place. They only know that they have had a very tedious case of labor. When they do realize it, it is usually too late for rectification. An early diagnosis is most important. Before the head engages in the pelvis it can be made only by abdominal palpation. When the head enters the brim it may still be difficult to make out the position with one or two fingers in the vagina. As a rule, if we do not readily reach the head when the pains are active, or if we feel the rotundity of the occiput but cannot readily determine the presence of the posterior fontanelle or lambdoid suture, we have an occipito-posterior position. The treatment will depend upon whether the head is still above the brim, is entering the inlet, or is entirely within the pelvic cavity. In the first instance we may either wait for anterior rotation to occur or endeavor to aid Nature. One of the best methods is to place the woman in the knee-chest posture. Thus we may frequently convert a posterior into an anterior position before the head engages. When the head has entered the pelvis and the occiput is felt on a lower plane than the sinciput, flexion has already begun which will probably terminate in anterior rotation. But even here rotation may be very

long delayed. Here it is possible to aid and anticipate Nature by introducing the hand into the vagina and rotating the head anteriorly, the patient having previously been anesthetized. When the head cannot be rotated we may still favor anterior rotation by pulling down the occiput with the finger or pressing upward the sinciput, for the keynote of the whole situation is want of flexion. If the head cannot be flexed and remains high up a deadlock ensues. When the head has fully entered the pelvis I am not prepared to say whether or not it can be rotated with the forceps. The essayist may be justified in claiming that he can easily do it. I have tried it several times, but failed. When the head is impacted low down in the pelvis I do not see how it is possible to rotate the head with the forceps. When about to emerge in this position at the outlet the only rational way of terminating labor consists in delivering the occiput over the perineum with the sinciput arrested at the pubes. This, of course, puts a terrible strain on the perineum, which is torn in the great majority of instances. Owing to the delay and great strain on the fetus, it will be dead in many instances. Fortunately, in the great majority of cases anterior rotation gradually takes place, and when flexion becomes more marked, followed by descent of the head, it is not proper to interfere, but to give Nature at least a chance to complete the delivery.

DR. CHAUNCEY D. PALMER.—It is profitable that we shall first determine what an occipito-posterior position is. In my judgment it is a position of the vertex in which the occiput impinges upon the posterior inclined plane of the pelvis, not upon the anterior. An anterior position is one in which the occiput looks forward; it may be directly toward the left or right side, or more posteriorly—so far posteriorly as nearly to the sacro-iliac synchondrosis. This is a position in which anterior rotation is inevitable, and yet the occiput may look posteriorly. The vast majority of those here, if called upon to diagnosticate that position at times, may say it is an occipito-posterior position. It is a first position. Although it does look posteriorly, it will inevitably rotate anteriorly. If a round body, like a fetal head, be pushed downward from above upon the anterior inclined plane of the pelvis, the direction of movement of that body will be downward, inward, forward, and then outward. Let the occiput impinge upon the posterior inclined plane, and the body moves downward, inward, backward, and outward; in other words, there is posterior rotation. It cannot move any other way, unless some artificial aid or direction is put upon it. The line of demarcation extends from a point about one centimetre in front of the sacro-iliac synchondrosis to the spine of the ischium. If the occiput strikes anterior to this line it will rotate anteriorly, although it may look somewhat posteriorly at the start. If it is posterior to this line it will inevitably rotate posteriorly. This matter of mechanism of parturition is dwelt upon more by Hodge than by any one with whom I am familiar. And

this is the explanation, I believe, of the whole matter. How will you diagnosticate these cases? Ordinarily the posterior fontanelle is the presenting part in occipito-anterior cases, but in posterior cases the anterior fontanelle presents because there is a want of flexion. Of course, then the occiput has further to travel and must encounter greater resistance, hence a longer and more painful labor. Diagnosis is the most important thing. In the first stage of labor, before the head is in the pelvic cavity, lift it up and turn it with the fingers within the cervical canal. The spinal cord of the child is not in any danger. We may aid the turning of the body by external manipulation. If we cannot rotate the head, or if the occiput should return to its original position, perform podalic version. If the head is in the pelvic cavity and on the posterior inclined plane, put the woman upon the side that favors rotation—that is, the side toward which the occiput looks. If the head rotates posteriorly, leave it alone; if she is a multipara with a relaxed pelvic floor, she may deliver herself. If a primiparous woman, she will have a protracted, painful labor and probably will require some assistance by taxis or the application of the forceps. If the head is on the pelvic floor and there is posterior rotation, it is too late to attempt turning. Apply the forceps and deliver with the occiput posterior. But before it has come down thus far we may succeed in causing rotation with the fingers upon the left brow of the child, looking toward the right side of the mother, pushing it up and backward toward the mother's left. Or a vectis on the posterior part of the head to the mother's left and rear may help bring about rotation and flexion. Rotation of the head at the vulvar orifice can be done artificially; it sometimes occurs spontaneously. Whenever forceps are used in these cases, whether anterior or posterior rotation occurs, the rational way is to apply them with relation to the fetal head, not to the maternal pelvis. The forceps will rotate then with the head; if too much rotation follows, readjustment is needed before delivery is accomplished.

DR. PORTER.—Some doubt has been raised as to the feasibility of rotating the head within the pelvis. The difficulty in effecting a rotation is encountered, I think, in the insertion of the hand. The occiput is the part most accessible and pressure is made while introducing the hand, with the effect of raising the occiput and thus tending to produce extension. It is impossible to produce rotation with a head in that position. When attempts at rotation with the hand are made, the hand is generally so introduced that after the head is partially rotated the hand is at a great disadvantage. For instance, if the occiput is posterior and to the right, my plan is to carry the left hand in to the right side of the child's head, carrying the hand in with the ulnar edge anterior, until the head is grasped with the fingers in such a way that instead of pushing the occiput up it is pulled down and at the same time pressure is exerted on the frontal region with the fingers.

Then with the external hand the head can be brought into the desired position. I have done this where the head was impacted and prolonged efforts had been made at extraction. I have carried the rotation still further past the second position into the first, through 180° . A little pressure from above will secure the position. The frontal region is brought so that it is held by the promontory of the sacrum. Have a nurse or assistant follow the external hand, and you have no difficulty in applying the forceps.

DR. WITHROW.—That is all done under anesthesia?

DR. PORTER.—Yes.

DR. BYRON STANTON.—I think the essayist will find some cases will not yield to the treatment he has recommended. I believe no one line of treatment can be laid down for their successful management; each must be managed according to the indications present. I do not believe it is safe to turn the head 180 degrees if the body is not turned at the same time. I believe when the uterus is contracted upon the child such twisting will be fatal. Internal rotation of the fetus is sometimes useful, although it is sometimes condemned, I believe unjustly. In many cases, when the head has not descended far or has not completely escaped from the uterus—that is, in any case in which podalic version may be applied—internal rotation may be effected more easily than that procedure and with greater safety to the child. I have tried it a number of times. I saw two cases last year, and can now recall three others, in which I resorted to internal rotation with the greatest satisfaction.

DR. WENNING.—You mean internal rotation with the hand?

DR. STANTON.—Yes, internal rotation with the hand, just as for podalic version, lifting it up and turning the whole child. It is more easy than podalic version. And then delivery can be accomplished with the axis-traction forceps, just as in a case that was originally an anterior position. Application of forceps is not always necessary, but may be used to hasten delivery or keep the head from turning back, though that is not likely to occur if the body of the child is turned. This is not practicable when the uterus is firmly contracted upon the child or in any case in which podalic version would be impracticable. When the head is in the pelvic cavity and rotation does not occur, I would put on the forceps and deliver with the occiput posterior. If the child is surely dead I would perforate. In primiparæ there is considerable laceration, but that is not the worst thing that may occur.

DR. ZINKE.—In the cases where you can carry the hand up and turn the child, what are the indications?

DR. STANTON.—In one case the membranes had been ruptured several hours, but when I introduced my hand with the intention of performing podalic version I found I could not rotate the child as easily as I could have turned. In many cases of posterior presentation, where the woman has been a long time in labor, the performance of this operation is justi-

fiable if the contraindications to which I have referred are not present.

DR. T. A. REAMY.—I think the rotation that occurred at the vulva, cited by Dr. Palmer, was accomplished entirely by the shoulders, and was therefore spontaneous, leaving no necessity for artificial aid. I still think a great deal of light is thrown upon the subject by the experiments of Dubois. He incised the uterus, introduced a child into it, and in three consecutive experiments secured anterior rotation of the occiput by pushing from above. He took a larger child the next day, but when the resistance of the vagina and the soft parts below was taken away by the repeated deliveries rotation did not occur. These experiments have been quoted many times, but have not lost their value. I was glad to hear Dr. Porter speak of correcting the position at the brim. But if the sinciput becomes wedged down in front—that is, premature extension—rotation will not occur. It may be forced, but it will not occur naturally. If the occiput can be kept lowest it must rotate forward. This is a physical law. The sinciput then ascends on the anterior planes. Whatever method is adopted, you will profit by the suggestion made by Dr. Wenning in reference to paying special attention to the body of the child, the co-ordinate rotation of the body of the child, and the shoulders of the child, so rotation of the vertex will not be resisted by a twist in the child's neck. That can be accomplished by changing, if necessary, the position of the woman and by external manipulation in connection with the rotation of the head. In lifting the sinciput by pressure with the fingers you simply imitate the process of Nature in the natural rotation forward of the occiput. You thus reinforce Nature. I have repeatedly safely accomplished rotation by the forceps.

DR. M. A. TATE.—The treatment of occipito-posterior positions demands proper diagnosis of the case. The illustrations in modern text books show that the external diagnosis is made with the ends of the fingers, which is not altogether correct. With the legs flexed, the head can be grasped with the fingers and pushed from side to side, but to correctly locate the back one must use the palms of the hands as well as the fingers. Correct diagnoses can be made in nineteen cases out of twenty by proper external palpation. Rotation with the forceps was easily accomplished in recent cases where the occiput pointed directly posterior, and I do not understand why so much objection should be offered to a correct form of treatment of these troublesome cases. The majority of obstetricians do not countenance craniotomy upon the living child. Forceful extraction depends much upon the condition of mother and child and upon the one performing the operation. I have seen cases where the body of the patient was lifted off of the table in the efforts at delivery with forceps, yet were terminated with very little laceration of the soft parts and the child uninjured. But the operator should be ex-

perienced with the use of forceps. The essayist speaks of keeping the finger in the vagina for hours. Against this I very emphatically protest. To me such management of a case is nothing less than a forerunner of puerperal sepsis.

DR. E. G. ZINKE.—I was apprehensive that I had not been properly understood. In the first place, I do not believe I abused the essayist in any way whatever, as one would be led to believe by the remarks of the gentleman who succeeded me in the discussion. I never questioned for one moment that the head may be turned with the forceps, for I have done it myself, nor did I disparage this procedure when the head is low down. But I questioned the use of forceps when the head is impacted and the soft parts swollen and dry. I defy any one to apply with safety the forceps under such circumstances. Nor is craniotomy proper in such cases if the child is living. If you take into consideration the cases in which there is disproportion between the child and the pelvic passage, the best obstetrician will have his hands full to manage the case to his satisfaction, and errors in judgment are possible and pardonable. Fortunately, in only one out of fifty cases of occipito-posterior position does the occiput remain posterior.

DR. REAMY.—West says ten times in one hundred.

DR. ZINKE.—I have seen West credited with saying that it occurs twice in fifty cases. Notwithstanding all that has been said to the contrary, in many of the cases in which we succeed by the manipulations described spontaneous rotation would have occurred without them. This is true according to my experience, and it corresponds with the views entertained by such men as Tarnier, Playfair, Hodge, and Parvin. There is a time for interference, but it is also true that not infrequently the efforts made to correct a faulty position of the head have precipitated the very difficulties and complications which the inexperienced and apprehensive operator sought to avert.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of March 6, 1901.

The President, PETER HORROCKS, M.D., in the Chair.

The President, DR. PETER HORROCKS, delivered his

INAUGURAL ADDRESS.

After referring to the honor of being unanimously elected President, the first elected President of the Society in the twentieth century, he proceeded to discuss the condition of the science and art of midwifery and diseases of women a hundred

years ago, and to trace the progress up to the present time, and then to point out briefly what remained to be done.

The classification of labor into (1) natural, (2) laborious, and (3) preternatural by Smellie, and the addition of (4) complex by Denman, was quoted. Natural labor was considered a century ago a most dangerous and difficult procedure, requiring the very highest skill on the part of the accoucheur or midwife. And although the practice of meddlesome midwifery, such as dilating the vaginal orifice, or os uteri, by means of the fingers, was vigorously condemned, yet it was considered perfectly proper and advisable to prevent rupture of the perineum in a too precipitate labor by forcible resistance to the head when distending the perineum; and if the placenta was not soon delivered by the natural forces, traction on the umbilical cord was advised. In preternatural labors two instruments were in use, namely, the vectis or lever, championed by Denman, and the forceps, extolled by Osborn. When craniotomy was needed, the head was perforated and the child left for twenty-four to thirty-six hours, in order that putrefaction might supervene and so soften the bones of the head and allow a more easy breaking up by means of the crotchet. Cesarean section was always fatal to the mother, and was rarely, if ever, performed, the patients dying from septic poisoning unless they were carried off by shock or hemorrhage. Symphyseotomy was condemned as an unjustifiable operation. Postpartum hemorrhage was very common, and was treated by raising the patient up suddenly, in order to make her faint, or by applying cold to the belly. Fever was so common after labor that pregnancy itself was defined as a "certain inflammatory disposition of the body," and support was given to this by the alleged "fizzy" condition of the blood and "buffy coat," and the "more frequent pulse." Various forms of fever were described, and it was shown that puerperal fever was very common, although called by different names. Its treatment was chiefly by bleeding. Convulsions were regarded as due to "morbid irritability," albuminuria being unknown. Abortion and threatened abortion were treated by repeated bleedings. Extrauterine fetation was treated on the expectant plan. The bowels were to be kept open, poultices were to be applied, and any abscess forming was to be laid open. Operative procedures were not recommended, as they were nearly always fatal.

There was an entire absence of all reference to even ordinary cleanliness on the part of the attendants or of the instruments. The paucity of remarks on diseases of women was pointed out. They were included in books on midwifery and generally occupied about a fifth of the space. Ovarian tumors were treated by tapping when they got so large as to cause distress. Sometimes stimulating drugs were injected into them to try to cure them, or attempts were made to get them to adhere to the abdominal wall. But as a rule they proved fatal sooner or later, for their removal was obviously not even entertained.

Cancer of the uterus was treated by palliatives. Fibroids were called "tubercles," and were never interfered with unless they became polypoid. Fallopian-tube diseases were practically unknown.

The progress made during the century was then pointed out, certain important events being specially mentioned, such as the introduction of chloroform by Simpson, the use of the cephalotribe and the craniotomy forceps, the abandonment of venesection, and the discovery that albuminuria was present in nearly all cases of eclampsia.

Semmelweiss' discovery that attendance on postmortems was highly dangerous for those who were in attendance on lying-in women, and Credé's method of delivering the placenta, were further instances.

The commencement of the antiseptic and aseptic era by Pasteur and Lister was then described, and the gradual evolution of this idea by eliminating all pathogenic germs from the attendants' hands, as well as from the patient, the clothing, the skin, the sutures, the needle, the instruments, and the sponges.

The improvement in the management of natural labor owing to the knowledge of asepsis was described, and it was pointed out that puerperal fever had been eliminated from lying-in hospitals, not by routine douching either of vagina or uterus, which was unnecessary and not devoid of risk, but by a scrupulous observance of the rules of asepsis. Natural labor was described as a physiological act, which considerably over 90 per cent of women could accomplish safely if let alone.

The ease with which Cesarean section and symphyseotomy could be performed with safety to mother and child was noted, and it was pointed out how, nowadays, rupture of the uterus was often recovered from by simply packing with antiseptic gauze. This was due probably to the fact that the accoucheur in his previous manipulations had done everything aseptically. The low mortality in operations for extrauterine fetation was noted.

It was also pointed out that length of incision in ovariectomy and other abdominal sections did not in the least matter nowadays, although it did in the time of Sir Spencer Wells. The great advance in our knowledge of the cause, symptoms, pathology, and treatment of diseases of the Fallopian tubes was shown.

In addition to the vast improvements made by the evolution of asepsis, it was shown that the transfusion of blood was not only no good, but positively injurious, and yet we were now able to save patients who were in danger of death from excessive loss of blood by the simple plan of replacing it by an equal amount of fluid such as water.

The improved status of obstetricians was alluded to and a hope expressed that in the near future great advances might be made, more especially as regards that scourge of mankind

and especially of women, namely, cancer, for which at present there was no cure, the knife offering the best chance for escape, and that often only for a time.

Dr. ROBERT BOXALL showed a specimen of a

UTERUS WITH LARGE CYSTIC FIBROID AND SUBPERITONEAL
FIBROID NODULES, CYSTIC OVARIES, AND A SMALL CAR-
CINOMATOUS NODULE IN THE FIMBRIATED END OF
THE RIGHT FALLOPIAN TUBE.

This specimen, comprising the greater part of the uterus with its appendages, was removed by operation from an unmarried lady of 48. The cystic fibroid, which appears to have sprung from the right side of the uterus about the level of the inner orifice, was found embedded in the pelvis, but had risen up, carrying with it the uterus and appendages. During the last few weeks growth had been rapid. At the time of the operation it almost filled the abdomen, and the posterior vaginal wall was much bulged downward, especially on the right side.

The abdomen was opened in the middle line and much free fluid was found. The cyst was tapped and proved to contain light olive-green fluid which coagulated on standing. As it was found impossible to separate the cyst from the uterus, hysterectomy was decided on. After both sets of ovarian vessels had been tied and when the uterine vessels were being dealt with on the left side, a curious and unforeseen accident occurred. The patient became suddenly collapsed. No obvious bleeding had occurred, but it was found that copious hemorrhage was taking place into the cyst from a venous sinus situated on its inner wall, large enough to admit the index finger. This bleeding was controlled temporarily by enlarging the opening into the cyst and turning it inside out. The cyst was afterward packed with cotton and separated from its bed in the pelvis. A sufficiently large flap had been cut from the anterior wall of the uterus to completely cover the stump, and the peritoneal cavity was completely shut off. After the operation was completed, saline injections were given by the rectum, and the patient rallied well.

The nature of the large cyst is evident from the presence of fibroid nodules both on its inner and outer surfaces and from the microscopic section taken through the thickness of its wall at a distance from the uterus. The small nodule, no larger than a cherry stone, at the fimbriated end of the right tube, under the microscope shows unmistakable evidence of cancer.

Dr. Boxall remarked that, from the history and from his examination of the patient, he was prepared to find a papillomatous cyst which had ruptured. But the evidence of malignant disease revealed by the microscope had come upon him as a surprise. He hoped that the disease would be found, on

further investigation, to be limited to the small nodule from which the section had been taken.

DR. C. J. CULLINGWORTH regarded the specimen as one of exceptional interest, but thought the tumor had burrowed beneath the peritoneal covering of the pelvic floor rather than into either of the broad ligaments, both of which seemed to be normal in the specimen.

DR. ARNOLD W. W. LEA showed a specimen of

SARCOMA OF THE UTERUS WITH MICROSCOPICAL SECTIONS

from a patient æt. 62 whose menopause had occurred at 50. She had had uterine hemorrhage and pelvic pain for four months. She then developed symptoms of diffuse pelvic cellulitis causing retention of urine and partial occlusion of the rectum. The anterior vaginal wall was bulged downward by exudation between the vagina and bladder.

The cervix was atrophic; the body of the uterus was much enlarged and acutely retroflexed. There was no peritonitis. The patient died from exhaustion and septic poisoning.

The uterus was much enlarged. A section of the anterior wall was occupied by firm growth involving its whole thickness and fungating on the peritoneal surface anteriorly.

There was no peritonitis. The uterus was quite mobile.

The ovaries, Fallopian tubes, and broad ligaments were normal. The bladder was dilated and showed evidence of cystitis. The floor of the pelvis was occupied by a firm mass of exudation compressing the urethra and vaginal wall and also producing extreme stenosis of the rectum for one and a half inches of its length.

Microscopically the growth in the uterus was composed of large round cells with deeply stained nuclei. The stroma was scanty, but contained large blood vessels.

The growth was evidently interstitial in origin, the mucosa being smooth and atrophic.

DR. CULLINGWORTH asked Dr. Lea what had caused the suppuration around the urethra and whether that focus of suppuration might not account for the cellulitis.

MR. ALBAN DORAN observed that this case reminded him of another under his own care sent to him by Dr. Auty, of Harlesden, who rightly believed her to be suffering from malignant disease of the uterus. She showed some of the symptoms of sloughing fibroid, and Mr. Doran endeavored to improve her condition before attempting an exploratory operation, but she died with general septic symptoms. At the autopsy Dr. Bosanquet detected sarcoma of the uterus with metastatic deposits in the lungs. Dr. Lockyer had made microscopic preparations of the uterine and pulmonary growths and found that they were sarcomatous and in some respects resembled deciduoma malignum. He had obtained fresh clinical facts which made it possible that early abortion had occurred. Those who did and those who did not believe

in deciduoma might alike find comparison of Dr. Lea's and Dr. Lockyer's specimens highly instructive.

DR. WILLIAM DUNCAN showed a specimen of

MULTIPLE MYXOMATOUS POLYPI FROM THE CERVIX UTERI.

The patient from whom the specimen was removed is a woman aged 57. She was admitted into the Middlesex Hospital on May 16, 1900. Her history is that the catamenia were quite regular up to two years ago. She has had two daughters, aged 29 and 25 respectively. Eighteen months before admission she had a polypus removed for continuous hemorrhage which lasted six months. A year later another operation was performed for a recurrence of the hemorrhage. Since then there has been more or less constant slight hemorrhage until a week before admission, when she had a severe loss.

Operation.—Under gas and ether, the cervix was exposed thoroughly and a good view of the mass obtained. It was composed of between twenty and thirty polypi of various sizes attached to a single base, the largest of which was the size of a walnut, the others being from one to one and one-half inches long and one-third of an inch wide. The color of the polypi varied from dark red to amber. The mass was removed by scissors and then the cervical canal thoroughly dilated. Digital exploration of the uterine cavity proved the endometrium to be much thickened, and in the right angle formed by the roof and lateral wall another hard polypus was felt the size of a haricot bean. Both this polypus and the endometrium were thoroughly removed and the uterine cavity packed with iodoform gauze for forty-eight hours.

The patient made an uninterrupted recovery.

Microscopically the tumor was made up of myxomatous tissue undergoing fatty degeneration and with some hemorrhages into it.

UTERINE FIBROMYOMATA.

DR. WILLIAM DUNCAN also showed two specimens of uterine fibroids removed from his last two cases of a hundred consecutive intraperitoneal hysterectomies for fibroids. His mortality was four, his last fifty-three operations having had no mortality. He attributed his good results to his plan of injecting three minims of liquor strychninæ thrice daily for several days before and after operation, thus diminishing the danger from heart failure and shock which are the great dangers after hysterectomy.

DR. AUST LAWRENCE (Bristol) congratulated Dr. Duncan on his results. He drew attention to the fact that it is not the size of the fibroid uterus which should determine the question of operation, but rather the clinical history of the woman, as some large tumors may be safely left, whereas some small ones, on account of severe hemorrhages, must be removed.

UTERUS BICORNIS UNICOLLIS.

DR. W. F. VICTOR BONNEY showed a specimen of *uterus bicornis unicollis* which was removed from a hydrocephalic fetus presenting, besides a double harelip, absence of the hard and soft palates. There was also a deficiency of the septum ventriculorum, and the aorta came from the right ventricle. The uterus consists of two corpora terminating in a single cervix. The corpora are distinct at their upper parts, but united below, where their cavities are separated as low as the internal os by a median septum. The recto-uterine pouch of the peritoneum is single. The ovaries and tubes are perfect, each coming off from its corresponding cornu. The cervix is large compared with the corpora, the relative lengths being as 2 to 1. The vagina is single, but presents a well-marked median ridge on its anterior aspect. The kidneys, suprarenal capsules, liver, spleen, and all the other organs are normal. The specimen is in the museum of the Middlesex Hospital.

Meeting of April 3, 1901.

The President, PETER HORROCKS, M.D., in the Chair.

SALINE INFUSION IN PUERPERAL ECLAMPSIA.

DR. ERNEST W. HEY GROVES read a paper on the pathology and treatment of puerperal eclampsia, with special reference to the use of saline transfusion, with notes of two cases.

CASE I.—Primipara aged 23. Easy labor in the absence of medical attendance. Eclamptic convulsions and coma immediately after, which increased in severity for twelve hours in spite of morphia and pilocarpine. Endovenous injection of one hundred ounces of hot normal saline was followed by rapid improvement. Coma and convulsions lessened at once, and fits ceased within three and one-half hours. Coma passed off and diuresis occurred in thirteen hours.

CASE II.—Secundipara aged 21. Convulsions and coma with anuria ushered in labor at full term. Fits were of extreme violence and numbered about twenty-six between 2 A.M. and 4 P.M., when seventy ounces of hot normal saline solution were injected into a vein. Child was born at 5:30 and died almost at once. Frequency and violence of the fits lessened after transfusion and ceased within fourteen hours, while coma passed off, and diuresis was established within forty-eight hours. The return to consciousness was followed by two days of violent transitory mania, and a week after delivery a relapse of the anuria and delirium threatened as the result of a large meat meal.

Dr. Groves proceeded to tabulate 47 cases of puerperal eclampsia treated by this method by different observers, chiefly Porak (13) and Jardine (22). These showed a mortality of 12.7 per cent.

A summary of the principal facts relating to the pathology and morbid anatomy of eclampsia was given, proving the toxic nature of the disease, and showing the essential lesion to consist of minute capillary thrombi with hemorrhagic infarctions, surrounded by tissue necrosis. This lesion was shown to be of the same character in the brain, the liver, and the kidneys, and to occur also in the lungs, spleen, and other organs. The greatly increased coagulability of the blood was related to this lesion.

The origin of the toxins was considered to be threefold: (1) from the placenta, (2) from the fetus, (3) from the alimentary canal. The pre-eclamptic stage of the disease is caused by the presence of the toxins in the blood. The actual convulsions and coma result when these toxins cause the coagulation of the blood and the multiple capillary thrombi.

Dr. Groves concluded by suggesting that the therapeutic action of the saline solution depended upon its hindering the formation of the capillary thrombi and dissolving those just formed. He pointed out that it could not act primarily as a diuretic, because diuresis occurs after the convulsions have ceased. He also referred to cases in which gelatin injections have caused symptoms of anuria and uremia, accompanied by multiple thrombosis, arguing the possibility of these conditions arising from a morbidly increased coagulability of the blood.

DR. HERBERT SPENCER congratulated the author upon his interesting paper. He had only employed saline infusion in two cases, and, although both these cases recovered, he was far from attributing the result to the saline infusion.

The mortality of eclampsia varied greatly. Before the treatment by morphia he had had a long series of successful cases and then several which were fatal. He thought cases treated by morphia did better than those treated by chloroform, chloral and bromides, etc., but he had failures with the morphia treatment too. In his experience, however, morphia lessened the fits more than any other treatment; and as the diminution of the fits lessened the chance of cerebral and hepatic hemorrhages, he thought its value was great, though its employment was not free from danger. In one case, where there was a good deal of edema of the legs, he had made incisions into the legs and fomented the incisions with a view to aid the elimination of the poison; and as the case recovered, he would be inclined to try the effect of the incisions in other cases. With regard to the effect of saline infusions, he had tried their effect in cases of uremia twelve or fourteen years ago without benefit. The author of the paper had compared the mortality of cases treated by saline infusion with that of cases treated by other methods, to the disadvantage of the latter; but it must be remembered that from the former (all modern) cases septicemia had been in great part eliminated, whereas it caused a considerable part of the deaths of the older statistics. Moreover, there was a tendency to publish success-

ful cases where a new method of treatment was concerned, whereas if the case terminated fatally it was more likely to be unrecorded.

One remark in the paper needed correction, namely, the statement that the mortality of cases treated without saline infusion was "never less than 20 per cent." Ebinger had published a series of 28 cases from the women's clinic at Kiel, 1894-1900, with 4 deaths, a mortality of 14 per cent. If 2 cases (1 fatal) in which saline infusions were employed be excluded, it will be seen that the mortality (11 per cent) is less than that given by the author for cases treated by saline infusion. Dr. Spencer urged that saline subcutaneous infusions should be made with strict aseptic precautions, and that large quantities should not be injected at one spot, several cases of local gangrene and even fatal septicemia having been recorded. He was not convinced that saline infusions had lessened the mortality of eclampsia.

Dr. HERMAN highly appreciated Dr. Groves' scholarly paper. He agreed with Dr. Spencer in thinking that the figures given were not convincing as to the superiority of this treatment. Veit, in his lecture advocating the treatment of eclampsia by morphia, had reported sixty cases with only two deaths; and Charpentier, in a paper advocating treatment by chloral, had collected 239 cases with a death rate of only 4 per cent. Here were a larger number of cases and a smaller death rate than what was now put forward as evidence of the benefit of infusion of saline fluid. The theory put forward was that in eclampsia the coagulability of the blood was increased; but the only evidence of this was that in some cases the medical attendant had been surprised at the small amount of blood lost. Physiologists had, he believed, apparatus for exactly measuring the rate of blood coagulation; and it would be more convincing if the coagulability of the blood in eclampsia had been measured by an instrument of precision. He did not attach importance to the morbid condition said to have been found in the brain and quoted by Dr. Groves. Were the miliary hemorrhages described by Dr. Groves anything but ecchymoses such as were seen under the skin, the pleura, and elsewhere, and due to the tremendous venous congestion during the fit? Large cerebral hemorrhage occurred so seldom that it could not be due to any condition which was a regular and essential part of the disease. He thought that cerebral hemorrhage was occasionally seen in eclampsia, because in a few cases granular kidney and the vascular degeneration associated with it were present, and in such cases the arterio-capillary changes predisposed to cerebral hemorrhage. Pregnant women with previously diseased kidneys were more liable to eclampsia than those with healthy kidneys. Dr. Groves had described the chronic disease of pregnancy under the name of the "pre-eclamptic stage." He (Dr. Herman) thought this term was hardly appropriate, seeing that not more than one in five of the cases suffered from eclampsia, and that in some

cases eclampsia came on without any pre-existing renal disease. He thought the essential morbid condition in eclampsia was the acute degeneration of the cells in the great glands, the liver and kidneys, and that the hemorrhages were incidental and a result of the fits.

DR. W. S. A. GRIFFITH said he wished, in the first place, to point out the important mistake which Dr. Groves and many other writers on the subject made in discussing this subject under the title of "puerperal eclampsia," the disease being one of far wider extent than this term would indicate, for the cases in which eclampsia occurs are only a small fraction of the total number of cases in which the disease underlying eclampsia, namely, toxemia with nephritis, is found. It is essential that the disease be studied in a much wider sense, beginning with the cases in which albuminuria and dropsy in slight degree are the only recognizable symptoms, to the graver cases increasing in severity until even without eclampsia the health, if not the life, of the patient is in great danger, and through these to the cases in which convulsions and coma occur in varying degrees of severity. Such a method will be of the highest benefit to the practitioner, for it will lead him to a more rational and probably more gentle method of treatment in the urgent cases, and to a more rational and more active treatment in the cases which by the absence of eclampsia appear to be less urgent. Cases of eclampsia and placenta previa are alike in many ways. They suffer alike from the alarm to which they give rise and the danger of the methods adopted for their relief; the same principles of treatment apply to both; and while the fact is recognized that the patient's safety is greatly increased by delivery, it is forgotten, in the hurry and anxiety to carry this out, that the means used must be safe and not add to the danger. Forced delivery, morphia, pilocarpine, and septicemia claim many victims who ought to have survived if less heroic measures had been adopted.

The method advocated by Dr. Groves is quite unnecessary except in a few special cases, but in these it would appear to be of real value by keeping the patient alive until the kidneys and other organs are able to resume their work.

On the motion of DR. T. W. EDEN, seconded by DR. A. E. GILES, the discussion was adjourned to the next meeting of the Society on Wednesday, May 1.

The following specimens were exhibited:

THE PRESIDENT: A uterus from a case of deciduoma malignum, with microscopic sections. DR. HERBERT SPENCER: A cystic fibroid removed by posterior colpotomy. DR. H. R. ANDREWS: Kidneys from a fatal case of puerperal eclampsia, with microscopical sections.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Eclampsia.—W. Stroganoff²⁰ reports fifty-eight cases of eclampsia without a death. He considers this an acute infectious disease, whose duration is limited to not more than from twenty-four to forty-eight hours. He advocates narcosis by morphine and chloral hydrate, avoiding chloroform, which he regards as toxic, and continuing this treatment twenty-four to forty-eight hours: careful attention to cardiac and pulmonary action, including the use of oxygen; avoidance of all irritation, and rapid delivery by the natural route without any dangerous proceedings.

Molecular Concentration of the Blood in Eclampsia.—The examination of the blood of six cases of eclampsia leads A. Szili²¹ to the conclusion that the freezing point of eclamptic blood is practically the same as that of normal blood, a point which is almost constant. This he takes as showing that the permeability of the kidneys is not altered in the same way in eclampsia as in most uremic processes. He accordingly deduces the hypothesis that the supposed toxic substance which is the etiological factor of eclampsia is a complex molecule, perhaps an intermediate product of katabolic changes in the albumin molecule.

Vaginal Section in Eclampsia.—A. Dührssen²² records another instance of vaginal Cesarean section for eclampsia. The child lived one and one-half hours; the mother died twenty-three days later from pneumonia, probably tubercular. Dührssen accordingly claims this as a cured case of eclampsia. He says that the only rational and good treatment is that which empties the uterus quickly. Other methods may ward off eclampsia, but do not cure. He limits the classical Cesarean section to cases in which the true conjugate is under seven and one-half or eight centimetres. The vaginal operation he recommends for cases of difficult labor due to the maternal soft parts, including those in which the mother or child is endangered by a closed and rigid cervix. He holds that as the child is so likely to die in a case of severe eclampsia during the first seven months, pregnancy should be terminated without respect to its viability. The vaginal section allows the delivery of a living child within a few minutes, if it is viable; and a few more minutes suffice for a vaginal hysterectomy, if the dystocia is due to carcinoma of the uterus.

Abnormal Mechanism in Placenta Previa.—A patient of L. Blumreich,²² a Vpara, 35 years old, who had previously had normal labors, was nearing the end of pregnancy when she suddenly had a severe hemorrhage. Examination showed a

vertex presentation, cervix admitting two fingers, placenta covering the internal os. After perforation of the placenta a foot was drawn down and frequent gentle traction employed. After about eleven hours the uterus became almost tetanically contracted, pains severe, and the entire fetus, membranes, and placenta were expelled *en masse*, the membranes unruptured. The placenta was in this way delivered before the body of the fetus.

Treatment of Septic Infection from the Uterus.—Abel²¹ divides the treatment of cases of sepsis proceeding from the uterus according to whether the process is general or confined to uterus, parametrium, or adnexa. If a portion of the secundines is retained he advises digital curettage after dilatation of the internal os, preferably by packing with iodoform gauze. If symptoms continue, irrigation with lysol, bichloride, or carbolic acid is indicated. If no more retained secundines are found the seat of infection is in thrombi in the uterine vessels, and irrigation reaches only the surface of these. The value of protracted irrigation with diluted alcohol is uncertain. Atmocausis is of much greater value and should always be tried before extirpating the uterus. Abel considers Olshausen's rule that the continuance of symptoms after irrigation demands hysterectomy as too general, as some such cases recover without such treatment. Removal of the uterus is indicated if blood cultures give a bacterial growth. In all cases with a positive result Prochownik has found only streptococci, and all died. Many also die in whom the blood culture is negative. This was true in one half of the writer's last ten cases, whether the uterus was extirpated or not. He excises the uterus also for severe traumatism of that organ in attempts to remove the placenta. The value of antistreptococcic serum he considers uncertain, as the published statistics are usually of only a few cases such as may recover under other treatment. He has had no favorable results from the treatment by artificial production of abscesses by subcutaneous injection of oil of turpentine in the hope of causing the formation of antitoxins. The resulting pus is completely sterile. He has found saline infusions and oxygen inhalations useful. If abscesses form in the parametrium or adnexa, vaginal or abdominal incision with vaginal drainage is indicated, avoiding the escape of pus and consequent peritonitis. If these purulent collections have become chronic, the appendages should be removed by the vaginal route.

Influence of Pregnancy upon Enteroptosis.—The action of pregnancy in cases of enteroptosis and gastropptosis has been studied by H. Maillart,²² who attributes to the increased intra-abdominal pressure an improvement of the digestive functions and the general condition, shown by an increase of weight. By the employment of suitable clothing and bandages, prolonged rest in bed after labor, regularity in nursing, and avoidance of carrying the child in the arms, he thinks the improvement will continue after delivery. Even in those cases in which albuminuria, lack of appropriate treatment, or other cause interferes

with this improvement, he has not observed any unfavorable influence of a suitably conducted pregnancy upon the visceral ptosis, even in neurasthenic persons.

Symphyseotomy.—H. Fritsch²⁴ lays down the following rule: If, with a moderately contracted pelvis, strong pains, and long labor, the head does not advance and the child is living, a forceps delivery is contraindicated. If it is possible to press the head through the pelvic inlet, employing the Walcher position, symphyseotomy is indicated. This being refused, the living or dead child must be perforated.

O. Gross²⁵ reports a symphyseotomy upon a pelvis with a diagonal conjugate of $9\frac{3}{4}$ centimetres. Although the joint was separated four finger breadths, external pressure and forceps failed to make the head engage, and the living child was perforated. The bones of the fetal head were found to be very hard, sutures and fontanelles very narrow. In spite of the separation at the symphysis, the sacro-iliac synchondroses were uninjured.

Bacteria in the Uterus after Labor.—In contradiction to the statements of other observers, Wormser¹ holds that although the presence of bacteria in the uterine cavity during the first week after labor is abnormal, this is not true at a later period. He bases this opinion upon the fact that he discovered germs in the uterus between the eleventh and eighteenth days in 84 of 100 cases who had had no temperature during the puerperium.

The investigations of G. Vogel² show that bacteria are found in the uterus in the greater number of cases of fever during the puerperium. In such cases with bacteria present there is usually some abnormality of the genitals. There is usually a retention of lochia, which may result from latero-version of the uterus or other causes. The discharge should be hastened by stimulating to cause uterine contraction, and irrigation of the uterine cavity followed by injection of 20 per cent alcoholic solution of carbolic acid should not be too long delayed. Cervical lacerations favor the ascent of bacteria into the uterus. Small wounds of the genitals aid the development of germs and greatly increase the danger. For this reason thorough previous cleansing is indicated. In the normal puerperium the uterine cavity is usually sterile at first, though bacteria, even the streptococcus, may be present without causing symptoms. Later the secretion of the normal puerperal woman frequently contains bacteria, though no fever is usually caused by them. Streptococci are comparatively seldom found in the puerperium when there is no fever.

Antistreptococcus Serum in the Treatment of Puerperal Sepsis.—Frank A. Higgins³ believes that the serum treatment has no place in the routine treatment of puerperal sepsis; that it should be used only in desperate cases after failure to obtain improvement by other and usually more efficient methods; and that if no improvement is shown after

use for two or at the most three days and the injection of 40 to 60 cubic centimetres, it should be discontinued. Its use is not free from danger; it usually lowers the pulse and temperature, but at the same time it has a correspondingly depressing effect upon the patient; and it has not apparently lowered the mortality of the disease.

M. Blumberg⁴ reports 12 cases of puerperal infection in which the serum treatment was employed, in 9 of which bacteriological examination of the lochia was made. In cases of streptococcus infection the results were apparently favorable. Incidentally he noticed the occurrence of simple or painful erythematous cutaneous eruptions, sometimes resembling a mild erysipelas, general erythema, and urticaria factitiosa.

Cesarean Section.—Edwin B. Cragin⁵ states that if the woman can be delivered of a living child by forceps or version the question of a cutting operation should not present itself. If the woman cannot be delivered of a living child by the above milder obstetric procedure, the question of a cutting operation comes in competition with a craniotomy or embryotomy. If the woman is in poor condition, so that her life would be seriously endangered by a cutting operation, it should yield to a craniotomy, be the child living or dead. If the child is in poor condition and its chance of survival is slight, all cutting operations upon the mother should yield to craniotomy, unless the parturient canal is so obstructed that delivery by craniotomy would expose the woman to more danger than Cesarean section. With the woman and child both in good condition and delivery by version or forceps impossible, Cesarean section should be performed. The author reports 9 cases done by him at Sloane Maternity, in which he got good results in all, except in one case, in which a macerated child was removed from a carcinomatous uterus, the mother died shortly after operation. Cragin places symphyseotomy as a less favorable operation than Cesarean section.

G. M. Boyd⁶ states that if the child is viable, the previa complete or partial, the cervix rigid, or the fetus transverse, then, in preference to other interference, the Cesarean section would seem indicated.

After the abdominal incision is made and the uterus separated by compresses from the intestine, Fournier⁷ divides the uterine wall without opening the membranes or placenta. He then shells out, with the hand, the ruptured fetal sac, thus avoiding the chance of flooding the peritoneal cavity with liquor amnii.

Routier⁸ reports for Lambray a Cesarean section necessitated by dystocia from changes in the soft parts by a previous uretero-vesical anastomosis performed to relieve a uretero-vesical fistula following labor. The cicatricial changes had been so extensive that the woman had been in labor for two days without dilating the cervix. Routier has seen a similar case of dystocia after this operation.

To eight cases in the literature H. Pape⁹ adds a ninth in which Cesarean section was necessary because of a vaginofixation. In so doing he indirectly ascribes another death to vaginofixation, since the fatal result occurred from ileus after the Porro operation which he describes.

Ectopic Pregnancy.—A critical study of 96 cases reported as repeated ectopic gestation, of which Varnier and Sens¹⁰ have retained 65 as proved to be such beyond reasonable doubt, has led them to the belief that this occurrence is much more frequent than is usually supposed. They go so far as to state that there is an evident tendency to recurrence which should always be suspected. The second extrauterine pregnancy occurs in the opposite tube from the first. In only one of the 65 cases was it in the same. Of 56 cases the second ectopic gestation followed the first by three to twelve months in 18, while 32 more occurred before the end of five years. In only 6 of the 65 did a uterine pregnancy intervene between the ectopic and its recurrence. There seems to be a tendency for the second extrauterine pregnancy to run a course similar to the first. The writers do not believe that the occurrence of a third ectopic gestation in one individual has yet been reported, but, as pregnancy has been known to recur once in the same tube, it follows that this might also take place in the opposite tube. Concerning the cause of recurrence, the writers show the incompleteness of the greater number of reports found in journals, and hence their uselessness in drawing conclusions upon this point. In cases in which two ectopic pregnancies are not preceded by a uterine, it is probable that there is bilateral incomplete development of the tubes, interfering with the passage of the fertilized ovum to the uterus. Recurrence without intervening uterine gestation in women who have previously had a normal pregnancy, or several, naturally suggests puerperal inflammatory changes around or within the tubes. The tubes may appear healthy, with the exception of the presence of the ectopic pregnancy, during the operation for the first occurrence of this nature, yet this is not conclusive evidence that salpingitis does not exist and predispose to recurrence.

David J. Evans¹¹ in discussing this subject states that if an operation is performed and the involved tube removed, the well tube should not be removed, as advised by some operators, to prevent ectopic gestation from occurring on that side. He reports a case of normal pregnancy following an operation for ectopic gestation.

Nausea and Vomiting of Pregnancy.—J. M. Batten,¹² after trying all the different drugs recommended for this trouble, has come to the conclusion that they are of no value. He has found that overfeeding generally gives relief. Before rising the patient should have a hearty breakfast, and three other full meals during the day. She should also have food near her bed at night, so that she may have something to eat if hungry. Fasting during the night is conducive

to sickness in the morning, and possibly during the ensuing day.

Circulatory Phenomena of the Pregnant Uterus.—R. H. Hodgson¹³ believes that as the fetus grows it presses more and more upon the uterine wall and thus cuts off its own blood supply gradually. A time comes when the pressure of the fetus cuts off all the blood coming to the fetus; after this condition has existed for a short time the fetus shrinks; the uterus, thereby released from some of its strain, empties itself of its contents.

Tetanus Puerperalis.—Kadarnath Das¹⁴ reports a case of puerperal tetanus occurring in a Hindu ten days after labor. The child died of tetanus ten days after birth. The mother was given intrauterine douches, chloral, subcutaneous injections of normal saline solution, calomel, and enemata. The spasms did not entirely abate until the sixth week of the disease, when she was discharged cured.

Malignant Degeneration of the Villi of the Chorion.—R. William MacKenna¹⁵ has come to the following conclusions:

1. Syncytioma malignum is a malignant degeneration of the cells investing the villi of the chorion. The involvement of the decidua serotina is a secondary feature.

2. There is great danger attendant upon the retention *in utero* of placental remnants or fragments of hydatid mole; and in all cases of hydatid mole, abortion, or full-time labor it is of the highest importance to make sure that no remnants of fetal tissue are left behind *in utero*. In the event of any repeated bleedings following the termination of gestation, the uterus should be explored and curetted, and the tissues removed examined microscopically.

3. The uterus and adnexa should be extirpated immediately on the discovery of any certain signs of the disease, unless extirpation is strongly contraindicated. The treatment is pithily summed up in the words, "*Diagnostic précoce intervention radicale.*"

4. The cause of the malignant changes in the cells is the presence in the blood of an irritative toxin of unknown composition.

Protection of the Perineum.—A rather irrational new method intended to protect the perineum is described by J. Hofbauer.¹⁷ As the head emerges the right hand presses against it through the perineum, while the left seizes and rotates the head about 40° in the direction in which restitution would occur after emerging from the vulva. The proposer's idea is that by causing the head to pass through the vulva with the long diameter of the head in the oblique diameter of the genital canal, the tension upon the perineum will be relieved.

Expulsion of the Amnion before Complete Dilatation of the Cervix.—Lefour and Alain¹⁸ record a unique separation of the chorion. Before the external os was completely dilated the liquor amnii came away and with it the amnion, torn only at its point of attachment to the cord. Delivery occurred

five hours later. The liquor amnii had evidently passed through the amnion and separated it from the chorion. When the chorion ruptured prematurely the amnion became torn at its point of reflexion upon the cord, and with its contained liquor amnii was forced out through the rent in the chorion.

Treatment of the Umbilical Cord.—Stolz¹⁹ ligates the cord at a distance from the umbilicus, and one hour later ties off the stump close to the skin with fine silk. He then removes, with sterile scissors, all the cord except for half a centimetre beyond the last ligature. A sterile dressing is applied every second day. He now reports the results of this method applied to five hundred cases. The cord remains nearly dry, and separates after an average time of six and a half days. This time was not affected by the weight or strength of the child or by the food, but where the mother suffered from slight infection the cord fell off rather later. But one instance of hemorrhage from slipping of the ligature is reported.

GYNECOLOGY AND ABDOMINAL SURGERY.

Coexistence of Carcinoma and Fibroma in the Corpus Uteri.—W. A. N. Dorland²⁵ removed a uterus infiltrated with small, nodular, fibromatous growths, one of which, submucous in situation and projecting well into the uterine cavity, had become involved in a cancerous process. Microscopic examination showed that the uterus was involved by a glandular carcinoma. The fibroid mentioned above had become involved upon its surface.

It is possible for fibroma and carcinoma to coexist in one of three ways: 1. Fibromyoma of the corpus uteri with carcinoma of the cervix. 2. Fibromyoma of the corpus uteri with associated adenocarcinoma of the endometrium, the malignant disease not invading the benign tumor. 3. True cancerous degeneration of an adenomyoma, the malignant change originating in glandular vestiges included in the uterine growth, or the carcinomatous disease invading the benign growth by extension from an endometrial adenocarcinoma through contiguity of tissue.

Operative Treatment of Cancer of the Uterus.—E. E. Montgomery,²⁶ in considering the treatment of cancer of the uterus, states that an operation, to afford hope of escape from relapse, must be early. The vaginal route should have the preference wherever the conditions will permit of its performance. Every precaution should be exercised to operate in healthy tissue and avoid the possibility of reimplantation. The prognosis is much less favorable in women under 35, quite favorable in women over 50 if an operation is done early.

Fibroids.—J. Bland-Sutton²⁷ describes a uterus, measuring 10 centimetres in the vertical and 15 centimetres in the transverse axis, which contained 120 fibroids. An examination of

the smallest of these tumors showed that their structure was that of plain muscle tissue, and even in the smallest the alternate and whorled disposition of the spindles was very striking. Each of the small growths was similar to a full-grown fibroid, and was sharply differentiated from the uterine tissue by a thin capsule, from which it could be easily enucleated.

Enterostomy in Acute Intestinal Obstruction.—E. J. Senn²⁸ emphasizes the value of temporary enterostomy in acute intestinal obstruction in selected cases, especially where facilities are not favorable for a laparotomy and where the patient's condition does not warrant such an operation. Enterostomy is a simple operation, requiring ordinary skill, while laparotomy with radical treatment of the obstruction is very critical. The opening in the intestine should not exceed one-half inch in length, parallel with the axis of the bowel, thereby readily closing after its purpose has been fulfilled. If the obstruction persists after enterostomy, a radical operation can be performed at a later date when the acute symptoms have passed away.

Resection of the Upper Portion of the Rectum or Sigmoid Flexure.—J. R. Morison¹³ has devised the following operation upon the lower bowel to overcome the difficulties of an end-to-end anastomosis. The diseased bowel is excised, and a glass bobbin with india-rubber tube affixed is tied tightly in the upper end of the sigmoid flexure. The india-rubber tube is passed down from above through the lower cut end into the rectum, where it is aided to pass through the anus by the finger of an assistant. The tube is drawn upon till the ligature on the upper cut end of the bowel is inside of the lower cut end of the bowel. A ligature is then passed round, immediately below the lower cut end, and tightly tied. This makes the junction watertight. The tube is again pulled upon until a short intussusception is produced. This is maintained by a few Lembert sutures. In four to eight days the ligatured bowel sloughs off.

Anastomosis of the Ureters with the Intestines.—Reuben Peterson²⁹ states that uretero-intestinal anastomosis is unjustifiable, either for the purpose of making the patient more comfortable, as in exstrophy of the bladder, vesico-vaginal or uretero-vaginal fistula, or for malignant disease. The primary mortality of this operation is exceedingly high.

Uretero-trigono-intestinal anastomosis has proved more successful and its mortality is low for an operation of such magnitude; its results have proved that it is a justifiable surgical procedure. If ascending infection of the kidneys occurs it is generally of such a type that the patient can overcome it.

Uretero-Vesical Implantation.—J. F. Baldwin²⁶ reports three successful cases of uretero-vesical implantation. In each case a portion of a ureter had been removed or damaged by an operation for malignant growths. For each case forceps was inserted into the bladder through the urethra and a point on the bladder wall selected which could be easily approxi-

mated to the proximal end of the ureter. This point was opened and the ureter implanted and sutured in place with fine catgut. In all the cases vaginal drainage was employed.

Streptococcus in Gynecology.—The gynecologist, according to Guy T. Hunner,²⁶ should make a probable diagnosis of streptococcus infection from the history alone. The characteristic post-puerperal streptococcus lesion is the dense cellulitic mass usually situated in the subperitoneal tissues and localized on one side or in one region.

Palpation, as an aid in diagnosis, is secondary in importance only to the history. Many cases of probable streptococcus infection can be operated upon without entering the peritoneal cavity. When it is necessary to do celiotomy, use great care in guarding the general cavity; and if contamination of the pelvis occurs, leave a free supply of gauze, not so much for drainage as for the purpose of keeping the intestines away from the infected area until protective granulations have formed.

Operation for Parametric Abscess.—When the abscess is high up on the back wall of the pelvis, or in relation to the psoas and iliac muscles, J. R. Morrison¹³ performs the following operation:

The abdomen is opened by an anterior incision three inches long, made in the middle third of a line drawn from the centre of the back of the ilio-costal space behind to one inch above the symphysis pubis. The incision is next prolonged to the back of the ilio-costal space through the external and internal oblique and transversalis muscles, leaving the fascia transversalis and peritoneum intact. The peritoneum and fascia are then held forward in hemostatic forceps, and the left hand in the abdomen serves as a guide. The index finger of the right hand introduced posteriorly opens the abscess by bluntly perforating the transversalis fascia under the thickest part of the swelling. A drainage tube and iodoform gauze pads around it complete this part of the operation. The wound is sutured in layers except where the drain protrudes.

Intraperitoneal Rupture of Simple Ovarian Cysts.—In the course of 10 operations performed by F. W. N. Haultain³⁰ for ovarian cysts, he has met with 3 cases in which the cyst wall was torn and its contents evacuated into the peritoneal cavity, while in 3 others a distinct history of previous rupture was elicited. Haultain is of the opinion that ruptured cysts should in all cases be removed as soon as possible. In a few cases a spontaneous cure occurs after rupture, but a certain proportion redistend after the cyst wall has acquired a close connection to the surrounding structures by adhesions which complicate severely the subsequent removal of the growth.

The Ovary as an Organ of Internal Secretion.—From clinical evidence W. E. Dixon³¹ states that three points seem to be clearly demonstrated: First, that the presence in the body of ovarian tissue, however small in amount, is sufficient to prevent the distressing symptoms which frequently arise after

complete double ovariectomy. Secondly, the administration of ovarian tissue exerts a beneficial effect in patients in whom menstruation has ceased in consequence of disease or ovariectomy, and many physicians advocate its use at the menopause. Thirdly, ovariectomy has a distinct effect on metabolism, as shown by the diminution in gaseous metabolism, the increase in body weight due to deposition of subcutaneous fat, and the diminished secretion of P_2O_5 in the urine.

Ovarian Extract in Gynecology.—Wilmer Krusen²⁶ has found that ovarian extract is practically harmless. In the treatment of amenorrhea and dysmenorrhea no good results were secured (although in some cases of amenorrhea of obesity remarkable results were obtained by the use of thyroid extract). The best results have been obtained in a few instances of congestion and nervous symptoms following artificial menopause. No appreciable results were obtained in the use of ovarian extract in the natural menopause. No definite or exact reliance can be placed upon the drug, as it often proved useless where most positively indicated. The effects are largely due to mental suggestion.

Septicemia.—W. W. H. Tate³² treated successfully a case of septicemia by antistreptococcic serum. The septicemia followed an inflamed cystic ovary with pelvic cellulitis and peritonitis. He believes that antistreptococcic serum should be used in all cases of puerperal fever.

False Membrane in the Vagina.—J. N. Hall³³ cites a case of false membrane in the vagina due to the bacterium coli. The case had the appearance of incipient typhoid fever at first. On the sixth day the false membrane was discovered, and upon examination showed a pure culture of the colon bacillus. The temperature ran as high as 104°. Under the application of a 1:5000 bichloride solution the membrane separated and the temperature fell to normal. A year previous another member in the same family was similarly affected.

Contusions of the Abdomen.—C. T. Scudder³⁴ believes that two classes of cases should not be operated upon: (1) that class in which little or no shock is present, in which there are absolutely no localizing signs, and (2) that class in which profound shock, amounting perhaps to collapse, exists. Immediate operation is demanded in persistent moderate shock with or without localizing signs, in cases of progressing hemorrhage, and in cases of peritoneal infection.

Atmocausis.—According to Samuel W. Bandler³⁵ atmocausis is positively indicated in uterine bleedings, especially the bleedings of climacterium and the uncontrollable hemorrhages occurring at this period and in earlier years, especially when curettage and other local methods are of no avail. It is the best method of treating uterine arteriosclerosis.

The duration of the application of steam is, as a rule, fifteen to twenty seconds in younger women where no obliteration is desired; four to eight minutes if total obliteration be intended.

The temperature used is 100° C. in the boiler, or about 70° C. by the time it reaches the uterus.

Pus in the Peritoneal Cavity.—The employment of gauze packing, according to R. T. Morris,²⁶ seems to be one of the inferior methods in abdominal surgery. The use of gauze packing not only lessens the power of the patient's sympathetic ganglia to engage in manufacturing leucocytes, but it sometimes causes illness by mechanical pressure; it also causes some shock when it is removed. Morris removes the principal collection of pus, leaving the rest to be disposed of by phagocytes. The method of making small incisions, which are closed after the abdominal cavity has been left full of decinormal salt solution, is also recommended by Morris.

Indications and Limitations of the Vaginal Operation in Pelvic Diseases.—It may be affirmed, according to J. R. Goffe,³⁶ that an operation that can be done as safely and satisfactorily for the patient by the vaginal route as by the abdominal should be done by the vaginal method. The dangers are less, the convalescence is smooth, and the after-treatment simple, the patient being relieved of the annoyance of stitches, adhesive plaster, bandage, and dressings, and there is no visible scar and no danger of hernia. Goffe believes this operation to be the only justifiable radical operation for uterine cancer. Salpingitis and ovarian abscess are best treated through the vagina, as are displacements of the uterus. Fibroids should be removed by myomectomy, if possible, and whether this shall be done by the vaginal method or not depends upon the skill of the operator and the position of the fibroid.

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DISEASES OF CHILDREN.

Adenoids.—Robert M. Lapsley¹ writes that even when the patient "outgrows" the original trouble, the results of adenoids will be shown in a deformed and badly developed face, poor teeth, a narrowed nose, a chicken breast, and permanent impairment of the hearing. These children become not only stupid in appearance, but stupid in reality. In many instances, after a careless examination, the operator has been satisfied by

simply removing the pharyngeal tonsils, where the introduction of the finger back of the soft palate would have demonstrated the presence of a soft tumor or tumors covered with mucus and easily bleeding.

Francis Huber² believes that this condition is overlooked by the general practitioner, as the patient comes to him with all sorts of stories, not necessarily of a local nature. In advanced cases no one ought to fail to make a diagnosis. A moderate amount of disease, however, may not give manifest symptoms, and in some instances the growths are found in the little patients who have practically not complained of local disturbances. Our suspicions should be aroused by repeated attacks of nasal catarrh, even though the patient appear well between the attacks. The diagnosis may be made from the symptoms, by means of the rhinal mirror, and by digital exploration of the naso-pharynx. If, for any reason, it may not be desirable to resort to a digital examination, reliance may be placed upon the two following conditions: (1) The presence of two small lymph nodes, painless and freely movable, at the angle of the lower jaw, one on either side. Though apt to become swollen with each new catarrhal attack, they return to their former size when the nasal trouble has disappeared, provided a mixed infection has not occurred. (2) Upon oral examination, if the size of the tonsils does not obstruct the view, numerous small lymphoid hypertrophies will be found upon the mucous membrane of the posterior pharynx; now and then, at the level of the soft palate, larger masses are present. The isolated prominences, more or less numerous, pearly and translucent in appearance, resembling larger or smaller sections of boiled sago projecting above the surface of the pharyngeal mucous membrane, are quite characteristic.

Congenital Dislocation of the Shoulder, with Report of Two Cases of Dislocation Posteriorly.—Daniel W. Marston³ reaches the following conclusions: 1. It is of the utmost importance to distinguish between cases of dislocation and true obstetrical paralysis. 2. The treatment of the former condition is immediate reduction, by manipulation if possible, otherwise operative. 3. Every infant should be carefully examined at birth, for it is at this time that reduction is easiest performed. 4. From the facts that a fracture of the glenoid cavity was found in three of Dr. Phelps' cases and that the history of nearly all cases shows difficult labor, the author believes that these cases are not of paralytic origin or due to non-development, but are due to traction made in the axilla by the finger or vectis, or to the arm being caught in some unusual position and dislocated by the contraction of the uterus. Paralysis may be coincident, but it cannot be a primary factor in causing dislocation posteriorly. 5. The prognosis of the operative treatment is excellent. The earlier the operation the more hopeful the outlook. 6. Like congenital dislocation of the hip, these cases of the shoulder are little benefited by mechanical treat-

ment. The author advocates the new excavator of Dijon, which he finds almost indispensable in the process of cleaning out the glenoid cavity for the reception of the head of the humerus. It is also of value in the open operation for the reduction of congenital dislocation of the hip. The instrument is made in three sizes, and consists of a cylindrical steel tube, conical at one end, furnished with cutting edges like the old-time pot auger used by carpenters. These instruments leave the glenoid cavity with perfectly smooth and regular edges.

Congenital Hepatic Cirrhosis with Obliterative Cholangitis.—H. D. Rolleston and Louis B. Hayne⁴ report the case of a child of 6 months, jaundiced since birth. At the autopsy cirrhosis of the liver was found. The authors give their reasons for supposing the case to be one of congenital cirrhosis, and, in summing up, state that it seems reasonable to believe that the disease is primarily started by poisons derived from the mother and conveyed to the liver of the fetus, and that a mixed cirrhosis and cholangitis are thus set up. The cholangitis accounts for the jaundice and, by descending to the larger extrahepatic bile ducts, induces an obliterative cholangitis analogous to obliterating appendicitis. In some cases, especially those fatal in early life, the latter change has not been effected and cirrhosis alone is found. Possibly in some instances this change never occurs, and in this way some of the cases of cirrhosis in very early life are accounted for. Again, in exceptional instances the obliterative cholangitis might possibly be delayed and come on much later. It is possible that there are several conditions at present included under the title congenital obliteration of the ducts, and that some are due to constriction of the duct by localized peritonitis and deserve the title better than those cases that are intimately associated with cirrhosis.

Congenital Hypertrophic Stenosis of Pylorus.—James H. Nicoll⁵ gives an account of a case of an infant 5 weeks old successfully treated by what was practically a Loreta's operation. Twelve and a half months after operation the child is in perfect health, excepting for slight rachitis. This disease is claiming some attention, thirty or more cases being now on record, and the impression is gaining ground that the affection is more common than has been supposed. The symptoms are such as to lead to some difficulty in the diagnosis, and the terms "infantile marasmus," "gastric catarrh," and "gastric myasthenia" may have covered such cases. The symptoms are the following: *Vomiting*, which is seemingly causeless unaccompanied by other symptoms of dyspepsia, and persistent in spite of ordinarily appropriate treatment, though perhaps for a time diminished or abolished by dieting and stomach washing. *Constipation*, which is a constant feature. *Emaciation*, which is progressive and extreme. Later in the disease the physical signs given are peristaltic gastric waves; periods of normal dilatation of the stomach, alternating with periods during which the organ may be felt like a ball, firmly contracted;

marked abnormal dilatation of the stomach with collapsed condition of the rest of the abdomen; pyloric tumor detectable by palpation (this is only rarely present). Broadly stated, the affection is fatal unless relieved by operation.

Agnes Blackadder ⁴ reports a case of this condition, of which only forty-five cases are on record. Three theories have been advanced as to the etiology: (1) developmental hypertrophy; (2) muscular spasm of nervous origin, or due to some irritant in the stomach with subsequent hypertrophy; and (3) congenital narrowing of the pyloric lumen with resulting compensatory hypertrophy of the stomach. The diagnosis is simple where a tumor can be felt. Constant vomiting, especially when it assumes the character peculiar to the vomiting of dilated stomach, and when it is associated with obstinate constipation from birth, is very suggestive of the presence of pyloric hypertrophy. Marked constipation alone may be due to fissure of the anus or to spasm of the sphincter ani; in such cases, however, there is increasing abdominal distension, and local examination usually settles the diagnosis. As to treatment, in the slighter cases, when the condition is probably due to spasm, the indication is to avoid exciting any unnecessary peristaltic action. The child should be fed by the nasal tube or per rectum. In the more marked cases operative treatment would seem to be indicated. Gastro-enterostomy and pyloroplasty have been performed in Germany and in America.

Descending Landry's Paralysis in a Child.—Leonard A. Bowden ⁶ reports a case in which the diagnosis was made from (1) progressive, symmetrical motor paralysis, affecting first the neck, then the arms, forearms, chests, legs, etc.; (2) sensation did not seem at all disturbed until a few hours before death, and even then only slightly; (3) absence of rigidity, twitching, pain, or spasm; (4) mental functions unimpaired and no loss of control over the emunctories. There was no history of any traumatism of the spine, and the symptoms did not point to spinal injury. The writer suggests that Landry's paralysis is caused by an acute anterior poliomyelitis, somewhat in the nature of that found in infantile paralysis; but instead of the lesion being scattered along the cord in spots, it commences symmetrically at a certain level of the cord and spreads thence rapidly upward and downward.

Diphtheria Bacilli in Noma.—Joseph Walsh ⁷ reports eight cases of noma, all of which showed in cultures the true diphtheria bacillus—that is, the true diphtheria bacillus as measured by the criteria of to-day. For his differentiation of it from others and the pseudo-diphtheria bacillus, he followed Sternberg as to its growth on different media, and Neisser and others in its staining qualities. Each organism was proved also by inoculation into guinea-pigs or (in one case) a rabbit. The amount inoculated was routinely small and was taken from a growth on Löffler's blood serum. Only one of the eight cases showed a pure culture of diphtheria organisms, and that one was in association with diphtheria. The others

showed besides very large bacilli, diplococci, etc. The author concludes that since noma is a species of moist gangrene, requiring probably from analogy two different micro-organisms, one a saprophyte to produce the putrefaction, another a parasite to produce the primary narcosis, it is possible that in those cases where diphtheria bacilli are found they may be the primary causative agents. When other pathogenic micro-organisms capable of producing necrosis are found, it is possible that they may be the primary excitants.

Erythema Multiforme and Vaccination.—Norman Walker^{*} reports 5 cases which presented certain features in common. All were vaccinated with glycerinated lymph, and in all of them the early course of the vaccination was uneventful. In 3 of the 5 cases there was nothing more than a slight feeling of malaise. The eruption developed always on the hands and the face, but on other parts as well. At the same time the vaccination area showed evidence of fresh activity. In 2 cases the scabs had fallen off and apparently all was over, but coincident with the eruption fresh vesicles appeared on the part, just as if the patient had been again vaccinated. The course of the erythema was uneventful, the eruption rapidly disappearing. The writer is of opinion that a toxin is produced which, circulating in the blood, produces, as many toxins do, an erythema multiforme, and especially that variety known as erythema iris.

Furunculosis of the External Auditory Canal simulating Mastoid Periostitis.—James Galbraith Connel^{*} reports two cases. In addition to pain, dulness of hearing, tinnitus, occasional giddiness, and occasional scanty discharge, which are the usual well-known symptoms of furunculosis of the external auditory canal, there occurs in some cases an edematous swelling over the mastoid process which is confusing and apt to lead to error in diagnosis. This error is pardonable, for the clinical picture is that of a mastoid periostitis; so much so that, apart from a local examination of the external auditory canal, a correct diagnosis and prognosis is hardly possible. To rightly understand this, the anatomical structure of the ear must be borne in mind. The inflammatory, and more especially the septic inflammatory, conditions may extend by continuity of tissue from the external auditory canal through the fissures of Santorini or along the fibrous band in the roof of the canal to the cellular tissue over the mastoid process, giving rise to an edema which may spread forward and involve the eyelids on the same side.

Infantile Mortality.—The correspondent¹⁰ in Paris writes that the results of the recent census show a new deficit in the increase of the French population. The mortality of very young children is considered as the most important cause of the depopulation after the decrease of births. As far back as 1866 a doctor proved by reliable statistics that 100,000 infants nursed out died annually in France from hunger, poverty, and want of proper treatment on the part of the nurses. In a

more recent period attention has been directed to the large number of still-born children. In 1895, 41,572 children were registered as still-born; in 1896, 42,054; in 1897, 42,249; and in 1898, 39,805. A large number of these children belonged to unmarried girls, who, for obvious reasons, take little or no precaution for their confinement and are only too glad to be rid of their illegitimate offspring. The Government has at all times made every effort against increasing infantile mortality. A law was passed in 1894 by which protection was extended to the life and health of children under two years of age; another law regulates the work of women during pregnancy, so that they can have proper rest and treatment at the physiological moment; while a third law removes the children from incapable or unworthy parents. A third cause of the depopulation, and certainly the most grave, results from abortion and infanticides. Abortion is practised to an enormous extent, especially in the large towns. The manifest cause of this is the general laxity of morals of both sexes. Political economists have prescribed different remedies for this condition of things, but without much success; among others, organization of maternal aid in order to save the child; aid to the mother at her own home and until her complete recovery; maternity hospitals in each district, where the woman would be delivered and cared for according to the resources of medical art; creation of refuges where the illegitimate children would be cared for and brought up by the state. Each of these remedies has its value, but there is one which, up to the present, has not been proposed, although claimed by many right-thinking men, and that is the rendering the young man responsible for his acts. Up to the present no child can be legitimately "fathered" on a seducer, so the mother has no redress; hence the prevalence of the crime of abortion or of infanticide.

Infantile Scorbutus.—John Lovett Morse¹¹ writes that while the more marked cases are now usually recognized, the milder cases are still often overlooked and misunderstood. The disease is uncommon under 6 months and rare after the age of 2 years. Anemia and malnutrition are probably the earliest symptoms. There is nothing characteristic about them, and they alone are not sufficient to warrant the diagnosis of scurvy. Their presence should, however, put one on one's guard. Pain is almost always the first symptom noted. It occurs on motion or on handling, and usually not when the body is quiet. It is not only the first symptom, but the most persistent and the most constant, and increases steadily in severity. On account of the pain when in motion, the children are fearful of being touched, and their expression of abject terror when any one approaches them is most characteristic. The pain is most often in the legs, then the back, and next in the arms. Hence paralysis is often suspected. The legs are usually held flexed at the thighs and at the knees. As the disease progresses swellings of the limbs appear. These are more common in the lower extremities, and

more common in the thighs than in the legs. They are usually situated at the ends of the diaphyses, and are due to subperiosteal hemorrhage. Swelling, sponginess, and ulceration of the gums are very common symptoms. This condition does not depend upon the presence of teeth, as was formerly supposed. Cutaneous hemorrhages are common in severe cases. Hemorrhages from the nose, stomach, and bowels are not very infrequent in the worst cases. It may also occur in the orbits, muscles, or internal organs. Hematuria is a rare symptom, and albuminuria rather infrequent. The anemia seems to be secondary to the hemorrhages. Fever is usually absent. The diseases for which it is most commonly mistaken are rheumatism, purpura, rickets, syphilis, Pott's disease, infantile paralysis, and injury. The chief cause of infantile scurvy is to be found in the diet. The majority of cases arise in babies fed on proprietary foods, though in a few instances the disease has occurred in infants fed exclusively on breast or raw milk, so the quality of "freshness" cannot be considered the sole causative factor. Still it can be generally considered that the further a food is removed in character from the natural food of the child, the more likely is its use to be followed by the development of scurvy. Regulation of the diet, the administration of orange or lemon juice, and the meeting of special indications constitute the treatment.

Nasal Neurosis.—Samuel G. Dabney¹² presents a case in which there was a thin, watery discharge from the nose, with frequent attacks of sneezing. He frequently has some obstruction about the nose, which soon passes off. He appears well nourished and eats and sleeps well. On examination a turgescence over the right inferior turbinate was seen, which disappeared quickly after the application of cocaine. This condition is frequently seen in young girls who are delicate, pale, and anemic, and is really a neurosis. It is due to a lack of tone of the vaso-constrictors. The exact pathology is not very clear, and it may be due to a local or central disturbance, or both. The treatment is simple, consisting of belladonna, strychnine, arsenic, and zinc as a tonic.

Supraorbital Neuralgia due to Eyestrain.—Samuel G. Dabney¹² presents a case and calls attention to the fact that headache through the supraorbital region is due to eyestrain in a very large proportion of cases, especially in young subjects. This condition not only interferes with the child's studies, but is also apt to retard development and to stand in the way of proper nourishment. In many cases there is more or less dizziness, and the patient may become nauseated when using the eyes.

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ORIGINAL COMMUNICATIONS.

POST-OPERATIVE SEQUELÆ AND CONSERVATIVE GYNECOLOGY.¹

BY

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THE history of gynecology is but a repetition of many another department of general surgery. The disappointing results following palliative treatment in years past led the gynecologist to resort to operative interference, and with such success, as compared with older methods, that operative procedure was carried to an extreme beyond reason and consequently many patients were compelled to undergo the discomforts of the early menopause needlessly. From this pinnacle of radicalism the tide seems to be turning, and although to-day complete hysterectomy is undoubtedly performed without proper indication, nevertheless the general tendency is toward conservative gynecology.

This article has been written to emphasize as far as possible the many disagreeable features of the artificial menopause, in the hope that the attention of physicians may be attracted toward

¹Read before the Roosevelt Hospital Alumni Association, April, 1901.

the more conservative method of gynecological surgery, to wit, partial oöphorectomy, partial salpingectomy, partial hysterectomy, hysterectomy without oöphorectomy, implantation of ovaries and vaginal drainage. It has been the purpose of the writer to obtain as nearly as possible the post-operative sequelæ of some two hundred cases of complete hysterectomy and double salpingo-oöphorectomy and one hundred and fifty cases of the more conservative operative procedures, so that the merits and defects of each method may be honestly compared and sequelæ noted. The cases extend over a period of eight years. The results appended are not in accord with many previous reports on the subject, and differ materially from the prognosis given in the daily routine of medical practice, generally speaking. An examination of the material presented by the journals and text books on gynecology has shown that the more conservative operative work has been mentioned with little favor, post-operative results being considered far less satisfactory than when the more radical operations were performed. Partial oöphorectomy, for instance, has been generally looked upon with disfavor, and hysterectomy without oöphorectomy has been regarded with suspicion.

In the compilation of material of this sort it is, of course, very difficult to obtain absolutely accurate results. The personal equation is a difficult problem to solve; our temperaments change from day to day; symptoms vary, depending upon individual susceptibility; the memory is apt to mislead when carried over too great a period, and, as is always the case in seeking facts, direct questions are apt to influence the answer of the patient, especially if she be at all diffident. Special effort, however, has been made to eliminate these possible sources of error and a fair average has probably been obtained. Before proceeding further the writer wishes to express his thanks to Drs. Cragin and Tuttle for their kind assistance in placing the material of Roosevelt Hospital at his disposal. A majority of the cases have been taken from this source.

In the consideration of major gynecological operations, there seems to be a tendency among many gynecologists to minimize the importance of the so-called post-operative symptoms, and the subject is, as a rule, dismissed without very much serious thought. It is too true that ovaries are removed with far less hesitation than testicles. The treatment of enlarged prostate by orchidectomy has fallen into disrepute, partly on account of disagreeable sequelæ often resulting in insanity; and yet how

many times a year do we see so-called "cystic ovaries" snatched out without a thought and displayed in triumph before a more or less admiring audience! Reference to the results here appended, it is to be hoped, will emphasize the importance of avoiding the artificial menopause, even at the risk of secondary operation. In discussing the post-operative sequelæ, those following complete hysterectomy will be considered first. Generally speaking, patients operated upon close to the menopause pass through the post-operative period without much discomfort, but, removed by even a few years from this time, it will be seen that they are very often exposed to an extremely disagreeable train of symptoms, and the further removed from the menopause the greater the suffering. Of the two hundred cases selected, the diseases necessitating operative interference were carcinomata, sarcomata, and fibromyomata of the uterus, septic metritis, rupture of the uterus, ovarian cysts, pyosalpinx, tubo-ovarian abscess, tubercular salpingitis, hydro- and hematosalpinx, and ectopic gestation. The difference in the method selected, whether abdominal or vaginal, seemed to make no change in the post-operative sequelæ, except that there appeared to be more pelvic pain following the vaginal route, and of course greater tendency to hernia in the abdominal. Post-operative sequelæ were far more severe, however, on patients suffering from previous suppurative disease than upon those afflicted with new growths, etc., carcinomata and sarcomata excepted, for in the latter all but one or two eventually died of recurrence. It would appear that the absorption of septic material for some long time, as in cases of pyosalpinx, had some particular lasting effect upon the constitution of the patient, rendering her more susceptible to disagreeable sequelæ; and, too, in the process of healing of the pelvic wound area in these cases, contractions and adhesions were more liable to occur, thus accounting for the increased pelvic tenderness and pain found. It is hardly necessary to mention that nearly every case was relieved almost entirely from the original symptoms of the disease for which the patient was treated, malignant disease excepted; on the other hand, an almost universal complaint was a sense of general physical weakness which failed to disappear with time. In almost all the patients there was an increase in weight varying from ten to one hundred and ten pounds, the average being twenty-five pounds, but the greater part of this increase was to be credited to subcutaneous fat of an exceedingly flabby nature. This increase in the fatty substances of the body could probably

be attributed not so much to the improved general condition of the patient as to that cause which governs the peculiar contrasting relations between adiposity and sterility. With all this fat, however, the common complaint was constant exhaustion, inability to withstand the ordinary amount of fatigue, and an entire loss of energy. For instance, one woman informed the writer that she had done the washing and housework for her family almost to the time of operation, but that since operation she seemed to have lost her strength, so that now, while apparently well, she was unable to perform her household duties. This was but an example, of which there were many.

The post-operative sequelæ, for purposes of classification, may be subdivided into general and local. The general may be again divided into (1) those resulting from vasomotor changes, (2) those affecting the central nervous system. Local symptoms have reference to changes in the breasts, external genitals, vagina, and broad ligaments. Probably the most annoying symptom, affecting almost every patient more or less, was what is commonly called the hot flash. It appeared to be involuntary, occurring without apparent cause, or brought on by the slightest excitement or exertion. Hot flashes would begin immediately after operation and last in 30 per cent of the cases four months, 40 per cent one and one-half years, and the rest from four to eight years, very many of the latter belonging to the eight-year class. In some the severity and frequency of the symptoms seemed to diminish gradually from the time of operation, but in many they increased to one and one-half years and then diminished, while others continued to get worse to the date of examination. So distressing was this symptom that many patients expressed a desire to die rather than suffer the misery of their present existence. Accompanying the hot flash there was nearly always a more or less deep flushing of the face, very embarrassing to the patient, and with this many called the writer's attention to an unusual sensitiveness to cold and inability to keep the extremities warm, even in moderate weather.

In six patients a peculiar bloated condition of local origin and varying duration was noted. The swellings appeared indefinitely on the face, lips, neck, hands, or, in fact, any part of the body. Beginning suddenly, they lasted from a few hours to two or three days and reappeared at intervals of two days to three months. The patient was carefully examined, but no cause could

be found for the condition. It might possibly have been of neurotic origin, acting locally on the vaso-constrictors of the smaller arterioles. Symptoms such as vertigo, headache, malaise, palpitation of the heart, were of common occurrence. The general appearance of the patient was good and evidences of anemia were present in only a few instances.

About 75 per cent of the patients complained of constantly increasing nervousness. In some there would be ever present the feeling of being under constant tension, with a desire to jump at the slightest disturbance. Other patients complained of increasing irritability of temper, bad memory, and not a few of symptoms bordering on melancholia, that is, a morbid condition of pessimism, changing what was originally a cheery nature to one of constant brooding. No definite case of insanity was noted.

In about one-third of the patients it was found that at the time of the regular monthly sickness a variety of symptoms occurred, each differing with the patient examined and all more or less discomforting. This menstrual rhythm would continue each month with great regularity. The duration of the period was about three days. The symptoms noted were, a feeling of general weakness, fulness and bloating of the abdomen, indefinite pains in the sides of the abdomen and back, marked depression, nausea, headache, and leucorrhea. These symptoms correspond in a measure to the premenstrual period of congestion common to many women.

The sexual desire in a few cases was increased after operation, but in the majority of cases it gradually diminished and in a few it was entirely lost. It remained unchanged in 15 per cent. This diminution in the sexual desire, together with the shortened vagina (where the supravaginal operation was not performed), interfered with coitus, thereby seriously disturbing the marriage relations in 10 per cent of the patients. This fact, together with the changed disposition of the patient and the inability to bear children, resulted in divorce proceedings in several instances.

It may be of interest to mention that a majority of the patients operated complained of attacks of chronic gastritis, which condition was not present previous to operation. Whether or not this was a reflex neurosis is a matter of opinion.

Taking into consideration the local changes, it was noticeable that the breasts increased in size very generally. There was, however, atrophy of the gland tissue, the increase being fat. The

external genitals always presented evidences of atrophy, with contraction of the vagina often, and the vaginal mucous membrane in very many cases was the seat of a post-operative vaginitis comparable to the senile vaginitis of the text books. This condition was somewhat peculiar. The mucous membrane was for the most part pale, but here and there were scattered brownish-red patches or excoriations which were quite tender and which secreted a thick, offensive, irritating pus and caused a constant smarting, burning sensation in the vagina. These excoriations not only involved the vagina, but extended around the urethral orifice, vestibule, and labium minus. The duration of the condition varied, but the tendency was toward constant recurrence, rendering the patient quite miserable from burning and itching, and repeated soiling of napkins. Coitus, of course, was inhibited. With many patients there was an abundant discharge of bad odor following hysterectomy, independent of the condition mentioned above. The condition followed more particularly suppurative diseases and was due to an old chronic inflammation of the vaginal mucous membrane. Accompanying this a point of tenderness would often be found in the vaginal vault due to the vaginitis, a tender scar, or some thickening of the broad ligaments with adhesions. With respect to supposed changes in the voice, the figure, and increased growth of hair on the body, nothing was noted. There was no apparent diminution in the size of the pelvis.

Referring now to conditions found where the ovaries were removed and the uterus was left either loose or attached to the abdominal wall, it must be conceded that in general the post-operative results were more unsatisfactory than when the complete operation was performed. The symptoms were quite as severe, and, in addition, often a large, pendulous uterus was left the seat of chronic metritis and endometritis to cause further trouble. If such a uterus remained free it often retroverted; if it were attached to the abdominal wall it was apt to be a constant source of dragging pain at the point of adhesion. In three cases where the ovaries were presumably removed, menstruation continued and is still present. A number of patients menstruated once or twice after operation. Five cases had to return for curettage, suffering from the usual symptoms of metritis and endometritis, and several returned to have the hysterectomy completed. That menstruation may continue after the ovaries have been removed seems certain, but such a condition is unusual ex-

cept for one or two periods after operation. Many patients suffered from irregular splashes of blood, not connected with the menstrual cycle at all, but due to the chronic inflammation left behind in the uterus. This condition should not be considered as menstruation, however.

Increase in weight, changes in sexual desire, hot flashes, changes in menstruation, skin tinglings, irregular symptoms at the time of the period, pelvic pain, leucorrhea, nervous conditions, in fact all the symptoms of the menopause, appeared with about the same frequency. The conclusion, therefore, would be (1) that there is no indication for leaving the uterus if the ovaries are removed, (2) that post-operative sequelæ result from the removal of the ovaries rather than the removal of the uterus.

The unfortunate train of symptoms following complete hysterectomy or double salpingo-oöphorectomy already described has of late years led gynecologists to consider the value of more conservative methods, and the results obtained have certainly been much more encouraging than with the radical methods of former years. The writer has had the opportunity of investigating some one hundred and fifty cases in which conservative operations have been performed, especially those under his personal supervision at Dr. Cragin's private sanitarium, and the results have been most gratifying. The work has consisted in resection of ovaries with stitching of raw surfaces together, partial resection of tubes, implantation of ovaries to the side of the uterus or in the broad ligament, removal of the uterus leaving the ovaries, partial removal of uteri. Those opposed to conservative operations have claimed that only too often conservative work leaves the patient in as bad a condition as she was before operation. This may be true if operations are performed without discrimination. It is hardly necessary to mention that conservative operations are not indicated in all gynecological conditions. Cases should be selected as when conservative work is performed in any branch of surgery. For instance, it would seem advisable (1) to leave ovaries whenever possible in all cases of hysterectomy; (2) to resect cystic ovaries; (3) where ovaries are so badly diseased, to remove them and implant a small portion of healthy ovary to the side of the uterus or in the broad ligament; (4) to resect tubes the seat of hydrosalpinx and hematosalpinx; (5) to drain by vagina pelvic exudates and cases of pyosalpinx. The report of these cases of conservative work, extending over six years, emphasizes the following facts: (1) that the symptoms

indicating operation are removed in a vast majority of the cases, secondary operation being rarely required; (2) that symptoms of the artificial menopause do not occur; (3) that menstruation continues, though sometimes diminished in amount; (4) that pregnancy results in about one case in five; (5) that the marriage relations are not interfered with; (6) that women preserve their identity and are not relegated to the realm of "its." It is hardly necessary to mention the operative procedures for resection of ovaries and tubes, for they are too well known to require discussion. One fact, however, disproving a common assertion, should be mentioned. It is very often claimed that if parts of ovaries are left in the abdomen they simply atrophy and become functionless. A marked instance to the contrary may be of interest. The patient was a sufferer from ovarian and parovarian cysts. These were removed and a small portion of healthy ovary was sewed to the uterus near the left cornu. The patient has menstruated regularly for a year, the probable conclusion being that the ovary has survived. It is certainly very possible for an ovary to atrophy, but examination of the patients thus far disproves this condition in a large majority of instances, for the patients continue to menstruate and ovulate and a few go on to pregnancy.

The ultimate conclusions, after reviewing the facts presented, would seem to be: (1) That the symptoms of the artificial menopause occur with more regularity, greater severity, and are of longer duration than is generally supposed, some women being left invalids; (2) that the symptoms are dependent for the most part on the removal of the ovaries rather than the uterus, therefore, if supravaginal hysterectomy can be performed, there is no indication for leaving the uterus; (3) that many of the cases in which it has been customary to advise hysterectomy can be treated in the future by the more conservative methods which have been mentioned; (4) that conservative methods do away with the artificial menopause, relieve symptoms, and allow the patients to continue their sexual life with a possibility of future pregnancy.

115 EAST FIFTY-SIXTH STREET.

PUS IN ABDOMINAL OPERATIONS.¹

BY

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THE mortality following operations for suppurative disease of the tubes and ovaries is variously estimated as from 8 to 20 per cent. In the face of these figures it is certainly incumbent upon us not to rest satisfied with present conditions, but ever to be looking for more perfect methods and to adopt more stringent precautions in our operative procedures. The most perfect degree of asepsis obtainable before, during, and after these operations, must always be insisted upon. Whenever pus is met with at the time of the operation, if a fatal result occurs, we are too apt to content ourselves with the explanation that infective material was already present and that its spread was only a natural result. As a matter of fact, however, it must not be forgotten that the pus met with under such circumstances, as a rule, is free from virulent bacteria; and whenever an infection follows a "pus operation" and no organisms can be demonstrated in the secretions encountered, it is not only possible, but even highly probable, that in the majority of these instances the fatal results have been due to the introduction of some septic material during the operation.

Again, as a result of my observations during the past seven years, I have become convinced that operators not infrequently err in carrying out radical abdominal procedures, when the patient's resistance is in such a lowered condition that she is very apt to succumb to the shock of the operation *per se*. Such a condition must always be given careful consideration when deciding for or against operative interference during an acute attack of localized or more or less generalized pelvic peritonitis. Believing that this factor has a very important significance in influencing our results, I have made it a rule, during the acute stage of a pelvic abscess, to defer an operation while the patient's condition is improving. In the meanwhile the patient is kept perfectly

¹Read before the American Gynecological Society at Chicago, May 31, 1901.

quiet on her back in bed, and heat, in the form of flaxseed poultices or turpentine stupes, is applied to the abdomen. In addition, a vaginal douche of a gallon of a warm one per cent solution of carbolic acid or a saturated boric acid solution is given twice daily. For nourishing the patient we depend upon nutritive injections entirely for several hours. Anodynes and heart stimulants are given if necessary. As a result of these measures we have found that, in the great majority of cases, the acute symptoms will subside within a few days and we can then operate upon the patient, who is now in a much better condition, either by the abdominal or the vaginal route or by the combined procedures. If, however, no improvement takes place under the above treatment within a reasonable time (eight to ten hours), and if we can make out a pelvic mass, we puncture through the vagina, and, after irrigating the sac or the pelvic cavity, pack with sterilized gauze. We have noticed that a number of well-known general surgeons in this country are treating cases of acute appendicitis in a similar manner.

The micro-organisms that are most frequently met with in cases of suppurative disease of the tubes and ovaries are the *Staphylococcus pyogenes aureus*, *Streptococcus pyogenes*, *Gonococcus*, and *Bacillus coli*. Other forms are occasionally met with, such as the tubercle bacillus and *Proteus Zenkeri*.¹ When we are able to demonstrate the presence of *Staphylococcus pyogenes aureus* at the time of the operation, we expect an uninterrupted convalescence in the majority of these instances. The organism most to be feared is *Streptococcus pyogenes*, and its presence always makes the prognosis very grave. We recall in particular an instance in which at the time of the operation macroscopical evidences of a small amount of pus were demonstrable, but no organisms could be shown from the pus at the examination made at this time. The culture tubes that were inoculated at the time of the operation, however, subsequently showed a profuse streptococcus growth. We drained in this case, but, despite our efforts, a streptococcus peritonitis developed and the patient died. The same organism was found at the autopsy. We unfortunately infected another patient with this organism, although before the second operation we carefully sterilized our hands, instruments, etc., in the usual manner. We removed without much difficulty the adherent tubes and ovaries on both sides. Cover-slips made at the time of the op-

¹Johns Hopkins Hospital Bulletin, No. 70, January, 1897.

eration were negative. In two days, however, this patient began to show evidences of a peritonitis, and a fatal result took place a day and a half after the death of the first patient. *Streptococcus pyogenes* was found, at the time of the autopsy, in the exudate present in the peritoneal cavity. In the first case there was a history of an induced abortion at the third month of pregnancy with subsequent fever six years before admission to the hospital. This suggested a streptococcus infection at that time. In the second case the patient had had two normal labors without any complications.

Such a stern lesson taught us once for all that even in cases in which there are only adherent organs, even when no pus is apparently present, we should always be on our guard against carrying infective material from one case to another. From the fact that we found no organisms present by the cover-slip examination at the time of the operation, however, we felt that we were justified in going on with the second operation. But for several years now, after having had such an experience, we do not perform more than one abdominal section in the same day, preferring to operate much more frequently rather than run risks. I certainly believe that the adoption of this precaution has saved a certain number of cases from being infected. I should say that, even prior to this regrettable accident, whenever we encountered a pus case we always postponed the carrying out of any further abdominal work, except in emergencies, until forty-eight hours had elapsed.

The question of using drainage in pus cases is always of interest, and all operators are not in agreement as to its advantages and disadvantages. In my clinic we have not used a drainage tube during the past seven years, and we now, as a matter of fact, seldom drain, even in pus cases, through the abdominal incision. Occasionally, when there has been a septic area left behind, we drain per vaginam, but even in these cases I do not feel that this procedure is by any means always necessary.

It has always seemed to me that we do not sufficiently protect from infection during the operation the portions of the pelvic contents which are apparently intact. Inasmuch as pelvic inflammatory disease frequently involves the intestines to a wide extent, it is sometimes impossible to prevent the infectious material from being spread more or less during the manipulations of the diseased structures. We can, however, to a great degree limit the free distribution of this purulent material throughout the abdominal cavity. In order to effect this, as soon as the ab-

domen is opened we are in the habit of placing large gauze sponges high up in the flanks on either side, the patient being kept in the horizontal position while the masses are being enucleated. If we break into a pus sac during our manipulations, we at once make cover-slips of the escaped pus, and while these are being examined we attempt, as far as possible, to remove the material that has escaped by mopping it up with gauze sponges. After this we wash out the abdominal cavity with large quantities of sterile salt solution, in order to get rid of as much as possible of the pus and to dilute any that may remain. The enucleated mass is now surrounded with gauze moistened in a 1:1000 bichloride solution, which is not removed until the structures have been cut away. The pedicle is thoroughly cauterized with the Paquelin cautery, and the abdomen is again washed out with salt solution, sponged dry, after which 300 to 500 cubic centimetres of warm sterilized salt solution are introduced and left there. The incision is closed without drainage.

The following is the clinical and bacteriological analysis of 72 consecutive, unselected abdominal sections for suppurative diseases of the tubes and ovaries, two deaths occurring:

ANALYTICAL REPORT OF SEVENTY-TWO CONSECUTIVE PUS CASES.¹

Age.—The oldest patient was 41, the youngest 17, the average age being 26.37.

Fifty were married, 16 were single, 6 were widowed.

Occupation.—Housework, 43; prostitutes, 11; dressmaking, 3; cooks, 2; canvassing agents, 2; seamstresses, 2; boxmaker, 1; dining-room girl, 1; clerk, 1; domestic, 1; laundress, 1; cigar packer, 1; match factory girl, 1; pianist, 1; telephone clerk, 1.

In 23 pregnancy had not occurred. In 13 miscarriages alone had taken place. In 8 full-term births alone had occurred. In 28 there was a history of births at term and miscarriages. The highest number of miscarriages in any one case was 5. The highest number of births at term in any one case was 7. The average number of miscarriages in the 41 cases having miscarriages was 1.94 per cent. The average number of births at full term in the 36 cases having births at term was 2. Thus it will be seen that in 49 of the 72 cases the number of births at term was 2. These figures go to show that the accidents inci-

¹The first case of this series was operated upon October 11, 1898, and the last one February 28, 1901. Since the analysis of these cases we have had 15 additional cases, making the number 87, but a sufficient interval of time has not elapsed from which to draw conclusions.

dental to labor and abortion have to be carefully considered as factors in the production of pelvic disease.

Infection.—We were able to establish a gonorrheal history in 14 cases (probable in 4 others). Infection after labor at term had occurred in 7 cases (2 of these cases also gave a history of a previous gonorrhea); infection after miscarriage in 17 cases (4 of these patients giving also an old gonorrheal history). In the remaining cases (31) no definite history of a specific infection or any relation between the disease and labor or abortion could be made out. In many cases there was a gradual onset with exacerbations of the symptoms at the menstrual period, but with no definite acute attack before admission into the hospital. In many the symptoms had persisted for long periods of time, in 1 case for 20 years. It was frequently noted that an attack of peritonitis had occurred before the patient was admitted into the hospital. In 33 cases these attacks had lasted under three weeks, and for the most part they were of about two weeks' duration. The shortest attack was one of two days immediately preceding admission. In cases of more than three weeks' duration various periods of time were represented—six weeks, two months, six months, a year, etc., with no special uniformity. Definite and similar previous attacks had occurred in 7 gonorrheal cases, the largest number of previous attacks being 3, except in 1 case in which there was a history of a great many. From this it will be seen that the infections following gonorrhea on the one hand, and labor or abortion on the other, are about equal in number. Thus, in 14 cases (19.44 per cent) we were able to get a positive history of a previous gonorrheal infection, and in 20 cases (27.77 per cent) there had undoubtedly been an infection following labor or miscarriage. Allowing, however, for those cases in which there had been a previous gonorrhea as well as a history of an infection following labor or abortion, and placing these doubtful cases in the column of the gonorrheal infections, we have the following figures: Gonorrheal cases 23 (?), or 33½ per cent of the cases; infections after labor and miscarriage, 20, or 27.77 per cent of the cases. Here, as has been said, we have added to the gonorrheal list by taking six cases which would seem to rather come under infections following labor or miscarriage. It is, of course, often extremely difficult to feel sure that a patient has had a specific vaginitis, unless cover-slip examinations have been made of the secretions at the time of the supposed infection. In many instances it is

not difficult to obtain a history of a vaginitis, but to prove that it has been specific in origin is not always easy. Many of the miscarriages had been criminally produced. The infections in these cases could generally be traced to the production of the abortion.

The temperature, pulse, and respiration before operation were as follows:

Highest temperature, 105.2° F.; pulse, 142; respiration, 42. Lowest maximum temperature, 98.18° F.; pulse, 82; respiration, 22.18. Average maximum temperature, 102.09° F.; pulse 106.8; respiration, 27.2.

The chief clinical symptoms were as follows, many patients showing several:

Pain in lower part of the abdomen was present in 67 cases.				
Backache	"	"	" 43	"
Leucorrhea	"	"	" 34	"
Dysmenorrhea	"	"	" 30	"
Headache	"	"	" 21	"
Dysuria	"	"	" 13	"
Bearing-down pains	were	"	" 8	"
Menorrhagia	was	"	" 5	"
Constipation	"	"	" 6	"
Gastralgia	"	"	" 2	"
Chilly feelings	were	"	" 2	"
Metrorrhagia	was	"	" 3	"
Cough	"	"	" 1 case.	
Painful defecation.....	"	"	" 1	"
Nausea and vomiting.....	were	"	" 2 cases.	

The most prominent symptoms were pain in the lower abdomen, backache, a leucorrheal discharge, dysmenorrhea, headache, and painful micturition.

Pus was found as follows: In the ovary, unilaterally, 24 times; bilaterally, 5 times, including tuberculous cases. In the tube, unilaterally, 25 times; bilaterally, 39 times, with tuberculous cases. In the appendix, in 1 case. In the walls of the uterus, in 1 case. In almost every case in which the pus was unilateral, the other tube and ovary were found to be adherent. Infection of the tube and ovary together (tubo-ovarian abscess) was noted unilaterally only and in 17 cases. The tubes are more liable to a bilateral infection; the ovaries to a unilateral infection.

The following operations were performed, all being carried out at the Lakeside Hospital:

Appendicectomy	26
Dilatation and curetting.....	24
Evacuation and drainage of pus sac, when removal was impossible	3

Myomectomy	3
Partial resection of ovary.....	2
Perineorrhaphy	2
Salpingectomy, unilateral ¹	17
Salpingo-oöphorectomy, unilateral.....	20
Salpingo-oöphorectomy, bilateral.....	46
Supravaginal hysterectomy.....	1
Suspension of the uterus.....	9
Vaginal puncture.....	10

Total number of operative procedures carried out upon the 72 patients163

Whenever the tube or ovary was simply adherent, but not disorganized, the adhesions were separated and the structures allowed to remain. Despite this conservative surgery, in not a single case up to the present time have there been complaints from these patients, nor has there been any necessity for further operative procedures. As a supplementary procedure appendicectomy was carried out 26 times, or in 36.1 per cent of the total number of cases. We believe that, in cases of suppurative disease of the tubes and ovaries, in about one-third the appendix will be found to be adherent. In those cases in which vaginal puncture was carried out, we found it impossible to thoroughly remove the abscess wall by the abdominal route, and in such instances we employed drainage per vaginam for a few days. In 3 cases, after opening the abdomen, it was found impossible to remove the pus sacs owing to the patients' weakened condition, and we were therefore obliged to drain through the vagina.

Results.—2 patients died, 70 recovered. *Mortality* for all cases, 2.77 per cent. *Morbidity:* So far as we have been able to ascertain, there are no patients in this series that make any complaints referable to disorders in the pelvis.

Drainage.—In 9 cases drainage was carried out through the cul-de-sac alone; in 2 cases through the abdominal wall alone; in 1 case through the cul-de-sac and abdominal wall combined. In 2 cases in which infection occurred subsequently to the original operation, the abdomen was opened and drained. One of these patients died, the other recovered. Thus abdominal drainage was carried out in 2 instances only immediately following the operation, or in 2.77 per cent of the cases. In 10 cases (13.6 per cent) drainage was carried out per vaginam.

¹In these cases the opposite tube and ovary were removed in all but one case, in which this procedure was impossible, drainage being used after evacuation of the pus.

Suppuration of the abdominal wound occurred in 12 cases, or 18.7 per cent. In 2 of these abdominal drainage was employed at the time of the operation. In 2 abdominal drainage was instituted several days after operation, 1 of these patients recovering. In the remaining 8 cases primary union occurred on the surface, but pus developed deeper down, usually about ten to fourteen days after the operation. Wherever there occurred a secretion from the wound in which it was possible to demonstrate micro-organisms, we classified the case as one of infection. In the secretion from the incision in 6 of the 12 cases we were able to demonstrate *Staphylococcus pyogenes aureus* and in the other cases *Staphylococcus pyogenes albus*. In this series of cases we consider that the infections above referred to were to some extent due to the fact that we had previously operated upon a case of post-puerperal infection in which *Staphylococcus pyogenes aureus* was found at the time of the operation. In six of the abdominal sections performed during the two weeks following (although we left an interval of four days) the incision became infected to a slight extent, and in the sero-sanguinolent secretion we were able to demonstrate *Staphylococcus pyogenes aureus*. In the tubes and ovaries the following organisms were found: *Staphylococcus pyogenes aureus*, 2 cases; *Staphylococcus pyogenes albus*, 1 case; *Bacillus coli communis*, 1 case; *Streptococcus pyogenes*, 2 cases; Friedländer's bacillus, 2 cases; *Bacillus tuberculosis*, 1 case; *Gonococcus*, 7 times positive (3 others probable). Thus in 12 cases (16 per cent) organisms were found. We were not able to cultivate the gonococcus, and the diagnosis was made entirely from the cover-slip examinations from sections of the tissues.

The diagnoses at the time of the operations were as follows (these differ somewhat from the pathological diagnoses, since a considerable number of cases of apparent salpingo-oöphoritis proved on further examination to be pus tubes):

Abortion, retained secundines.	1	Endometritis, Septic	1
Appendix, abscess of.....	1	" and stenosis.....	1
" adherent	11	Follicular hypertrophy of ovary	6
" concretions in.....	2	Hydrosalpinx	1
" cystic	1	Lacerated cervix.....	1
" flexure of.....	2	Myoma	3
" (periappendicitis) .	6	Ovarian abscess, unilateral ¹ ...	1
Endometritis	24	" " bilateral	1

¹Seventeen cases of tubo-ovarian abscesses have been classified under pyosalpinx and ovarian abscess; in each instance the abscess was unilateral, with a pyosalpinx upon the other side in 12 cases.

Pelvic abscess, probably pyosal-		Relaxed vaginal outlet.....	2
pinx	1	Retroversion	9
Perforation of uterus.....	1	Salpingo-oöphoritis, unilateral ²	21
Phthisis	2	“	19
Pyosalpinx, unilateral.....	20	Vulvo-vaginitis	1
Pyosalpinx, bilateral ¹	32		

4.

Perhaps a few words about the two fatal cases may be of interest. In the first case, in which there was a uterus septus partialis, a hysterio-salpingo-oöphorectomy for a tubo-ovarian abscess involving the uterine cornu, with appendicectomy, was performed. A considerable amount of pus escaped into the pelvis at the time of the operation, although the adjacent structures were protected by gauze pads. The previous history suggested the possibility of a streptococcus infection, since her illness had followed a miscarriage which had occurred ten weeks before the patient was admitted to the hospital. The temperature at the time of her entrance ranged between 100° and 102° F., but for the most part was under 102° F. At the time of the operation we were not able to demonstrate any organisms by cover-slip examination in the pus that escaped. We accordingly followed our usual plan of washing out the abdomen and closing without drainage. In eight hours the patient's temperature rose to 104° F. and the pulse to 148. She was, however, feeling comfortable. The next day her temperature fell to 101.5° and her pulse to 128. For the succeeding twenty-four hours her symptoms were on the whole favorable, and, with the exception of some difficulty in respiration, she seemed to be progressing satisfactorily. Her temperature varied during the next three days between 101° and 103.8° F.; at the same time there was marked dyspnea and the pulse gradually increased in rapidity. She finally died on the fourth day following the operation, without having shown any marked evidences of any peritoneal involvement, as there was no nausea, vomiting, or tympany and the bowels had been thoroughly well opened.

Autopsy showed the case to be one of pelvic abscess with general sepsis. Cultures made from the lung showed a pure streptococcus pyogenes infection, the same organism being also found in the liver, pleura, and peritoneum. In this case, then, we had to do with a streptococcus infection which had as its origin either

¹This includes 3 tuberculous cases. There were 3 tuberculous cases of bilateral pyosalpinx; in 1 of these there was also a bilateral tuberculous abscess of the ovary.

²Many showed pus on microscopic examination.

the introduction of this organism at the time of the operation or the miscarriage which occurred some months previous to the time of the operation. From my previous experience I am of the opinion that in this case a fatal infection would have followed even if drainage had been used.

In the second case we were not able to establish a history of an infection following an abortion or labor. Here we had to deal with an abscess involving the left tube and ovary, and an adherent right tube. We removed the diseased structures and made a cover-slip examination of the pus, but no organisms were demonstrated. We also inoculated culture tubes. The abdomen was closed. The patient's temperature the day following the operation rose to 104.4° F., and for the next two days varied between 102.5° and 105.7° F. On the tubes that were inoculated from the pus streptococci were found. On the second day after the operation the abdomen was reopened under cocaine anesthesia and washed out, drainage being afterward instituted. The abdomen was irrigated a second time and salt infusions were carried out at stated intervals. She died on the third day.

Cultures made from the lung at autopsy showed the *Diplococcus pneumoniae* and *Bacillus coli communis*; in the liver, *Bacillus mucosus capsulatus* was found, and in the peritoneum *Diplococcus pneumoniae*. In this case, then, streptococci, though not demonstrable by cover-slip examination at the time of the operation, appeared in the culture tubes two days later. At the time of the autopsy only *Diplococcus pneumoniae* was found in the peritoneal cavity.

In conclusion I wish to thank my former associate, Dr. William H. Weir, and my present associate, Dr. C. D. Williams, for kind assistance in making up this analytical report.

702 ROSE BUILDING.

IS THE KRASKE OPERATION JUSTIFIABLE IN WOMEN?¹

BY

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THE Kraske operation, or any of its various modifications, is one that is rarely spoken of with enthusiasm by surgeon, patient,

¹Read by invitation before the Washington Obstetrical and Gynecological Society, May 3, 1901.

or nurse. The surgeon, especially the gynecological surgeon, finds this approach to the pelvic and abdominal cavities, with all it implies at and subsequent to operation, intensely repugnant to his finer surgical instincts, which rebel at the thought of a complicated incision through bony parietes performed in a region difficult to keep clean under any conditions. The patient finds the restriction to lateral decubitus after operation irksome, and can scarcely be expected to take exuberant delight in the necessary frequent dressings of the wound. The nurse finds it difficult to maintain the parts around the wound in sweet condition, especially when the obstacles to the free and comfortable use of the bedpan are taken into consideration.

If the Kraske operation could accomplish anything for suffering women that could not be accomplished as well in some other way, it would perforce have to be accepted by the surgeon, however much against his tastes. The writer is convinced, however, that in the surgery of women, at least, everything that can be done by a Kraske can be done equally as well, or even better, without interfering with the integrity of the coccyx or sacrum. As a corollary to the above proposition, I find myself unable to escape the deduction that the Kraske operation, or any of its modifications involving resection of the sacrum or coccyx for the purpose of gaining access to the pelvic or abdominal cavities, is unjustifiable in women.

Let us briefly consider the purposes and objects which are sought to be attained by the Kraske operation, and then see if each of these purposes and objects cannot be attained in an equally good or better manner in some other way.

The operation was originally proposed by Kraske for resection of the rectum in cases of malignant or otherwise incurable disease of that viscus. That, if any, remains the only legitimate indication for the operation. Sacral resection was soon extended, it is true, to apply to cases of cancer requiring excision of the upper portions of the vagina and of the uterus. It is doubtful, however, if this further extension of the indications for the operation has met the approval of a dozen surgeons or gynecologists of standing the world over. Sacral resection for the purpose of attacking neoplasms of the uterus and vagina may, therefore, be dismissed with a mere mention.

Malignant and other tumors and intractable ulcerations of the rectum may, for our purposes, be divided into those located in the lower half and those involving the upper half of the rectum. Neoplasms, as well as other pathological conditions, lo-

cated well up in the sigmoid flexure are concededly best approached through an anterior abdominal incision.

As regards neoplasms and incurable ulceration of the lower part, say of the lower seven to eight centimetres, of the rectum, calling for removal of the diseased area, there is no question in the author's mind that, in women at least, the resources of surgery are amply sufficient to meet all indications without the necessity of recourse to resection of the coccyx or sacrum, or of both bones. Excision of the rectum by the vaginal route, by perineotomy, by incisions lateral or posterior to or circumscribing the anus, or by various combinations of these procedures, afford the expert in the surgery of the female pelvis a sufficiently wide choice of methods for resection of the lower end of the rectum to meet any and all indications in women.

Narrowing down, now, to a consideration of cases calling for excision of the upper rectum in women, the vaginal route has recently been proposed as an easy way of access to the upper end of the rectum, as well as to the lower portion of the sigmoid. In the author's opinion the possibilities of this method of approach have scarcely begun to be appreciated or developed. The great drawback of the method, however, will always lie in the difficulty of removing affected tissues and glands located high up in the pelvic cavity posterior to the diseased bowel. Removal of these tissues and glands can be accomplished better by the operation which I am about to propose as applicable in women, although my experience in its performance is limited to but a single case.

This operation consists in resection of the upper end of the rectum through the anterior celiotomy incision carried through the left rectus abdominis muscle, sacrificing the uterus if necessary to gain free access to the affected bowel and the tissues and glands posterior thereto. The method does not exclude any aid that may be derived from performing part of the work per vaginam, although the essential steps of the operation are, in the nature of things, performed from above.

I will first relate the history of the case in which I carried out what I believe to be an original idea and operation, and then briefly state what I consider to be the advantages of my operation as compared with that of Kraske.

Mrs. E. K., a married woman, aged 34, mother of five children and again pregnant in the fourth month, was sent to me by Dr. George A. Leitner, of Piermont, N. Y., for the removal of an operable cancer of the rectum which, according to her history,

had existed for three to four months past. Examination showed a tumor mass occupying the upper end of the rectum and the lower end of the sigmoid, and confirmed the existence of a pregnancy of four months. The lower end of the cancer was some 12 centimetres distant from the anus; the bowel and the tumor were fairly movable upon the surrounding parts; there was, however, almost complete obstruction, with large accumulation of fecal matter above the tumor.

Operation February 26, 1901. After thorough dilatation of the anal sphincter, irrigation of the rectum with 1:3000 sublimate solution, and tamponade of the cleansed vagina with iodoform gauze, the patient was placed in the Trendelenburg posture and the abdomen was opened by a 15-centimetre incision carried through the left rectus abdominis muscle. The large uterus with the contained fetus was removed in one piece with both tubes and ovaries—a typical panhysterectomy. The sigmoid flexure was next tied with a strip of iodoform gauze at a little distance above the tumor, the knot being arranged with a view to its easy undoing through the anus after the completion of operation. Eighteen centimetres of bowel were resected, embracing 8 centimetres containing the cancerous mass situated at the junction of sigmoid and rectum, together with about 7 centimetres of healthy bowel above and about 3 centimetres of healthy bowel below the tumor. Removal of the sacral glands and of all fatty and connective tissue posterior to the resected bowel, clean down to the periosteum covering the sacrum, was next performed, and was followed by end-to-end anastomosis of the sigmoid with the rectum, the sigmoid being invaginated into the rectum and the invagination maintained by two rows of interrupted sutures of ten-day catgut, twenty sutures in each row. The two rows of sutures were placed about two centimetres apart and maintained in apposition the outer surface of the upper two centimetres of the cut rectum and the same extent of the outer surface of the cut sigmoid, leaving about two centimetres of the tied end of the sigmoid to project free into the lumen of the rectum. The sutures embraced the outer coats of the bowel only, none of them penetrating the mucosa. This proved the only really difficult part of the operation, the delicate suturing of the bowel having to be accomplished deep down in the pelvis at a considerable distance from the anterior abdominal incision. A small strip of gauze was adjusted about the bowel at the line of suture and the end led into the open upper end of the vagina. The abdominal

incision was tightly closed. The strip of iodoform gauze tied around the lower end of the sigmoid was then untied through the anus and removed, free evacuation of the bowels occurring soon thereafter.

Convalescence was uneventful, with primary union of the wounds of the abdominal wall and bowels. The patient left her bed two weeks and hospital four weeks after operation. Microscopical examination of the tumor, made by Prof. Henry T.



a, fetus delivered with membranes unruptured through circular window cut in wall of uterus; *u*, uterus; *c*, cervix; *t*, tubes and ovaries; *e*, resected rectum and sigmoid showing carcinoma.

Brooks, proved it to be an adenocarcinoma. I present for your inspection the resected piece of bowel, as well as the removed uterus with the contained fetus and its membranes intact.

This constitutes, as far as the author's knowledge goes, the first instance in which abdominal panhysterectomy, resection of the cancerous upper rectum, and end-to-end anastomosis of the sigmoid and rectum, all performed at one sitting, were ever undertaken for the removal of a new growth of the rectum. The hysterectomy was deliberately planned and executed as part of

the operative procedure, the enlarged uterus, containing a four-months-old fetus, being in the way and rendering access to the bowel a matter of impossibility.

I presume that few, if any, of my hearers will question the propriety of removal of the uterus under the conditions just specified. Cancer of the bowel is in itself so grave a condition that all the resources in the way of vital energy any individual may possess will prove none too great to combat successfully the implacable disease, and a woman who suffers or has suffered from cancer should be considered as entitled to claim exemption from the drain of further child-bearing.

The advantages of the above-described operative procedure over the Kraske operation lie, first of all, in the possibilities of greater thoroughness in the removal of all diseased parts. The highest line of resection of the sacrum practicable with a due and fair regard for the patient's after-welfare runs across the bone at the level of the third sacral foramina. The sacral glands, however, which should always be removed in every operation for the radical cure of cancer of the rectum, lie in front of the sacrum at a higher level than that of the third sacral foramina, *i. e.*, at and about the level of the sacral promontory. It is a rather awkward matter to get at them, and practically an almost impossible matter to remove them thoroughly and unquestionably from behind, with the upper part of the sacrum in the way, as must be done, if at all attempted, in the Kraske. The higher up, on the contrary, that they are located, the more easily are they reached through the anterior abdominal incision. The facility with which all the fatty tissue and the glands behind the rectum were gotten at and removed was to me the chief revelation, and a source of great satisfaction, in performing the operation I have described.

A second advantage, and one by no means easy to overestimate, which the anterior abdominal incision possesses over the Kraske procedure, consists in the possibility of determining with certainty the presence or absence of secondary deposits in the liver before proceeding to resection of the bowel.

The liver can be readily reached and explored through an anterior abdominal incision, not at all, or only imperfectly and under the greatest difficulties, through the Kraske incision. Indeed, I am not aware that such exploration has ever been even attempted through the sacral incision. When **operating** through an anterior abdominal incision the operation is abandoned and

the abdomen closed should secondary nodules be discovered in the liver. In operating through the Kraske incision, probably many a cancerous rectum has been resected and a hopeless operation and useless suffering have been inflicted on many a patient, secondary foci existing unrecognized in the liver at the time of operation. Of course, if the Kraske be preceded by a preliminary inguinal colostomy, as is pretty generally advocated and practised, the liver can be explored through the colostomy incision. Even then, however, the colostomy incision must be made larger than the simple demands of a colostomy call for. When, however, you add to the Kraske operation a preliminary colostomy, with all that it implies, and later, if things go well, follow with a secondary operation for the closure of the artificial anus, the superiority, as far as the patient is concerned, of the operation I have described over that of Kraske becomes unmistakable.

Other drawbacks connected with the Kraske operation—the incision through bony parietes in a region difficult to maintain aseptic, the incidental injuries of more or less important nerve trunks, the restriction of the patient to lateral decubitus, the difficulties attending the use of the bedpan, the frequent changes of dressings and cleansing required to keep the wound and surrounding parts surgically clean—have already been mentioned. Contrast with these the simple incision, the single operation, and the smooth convalescence associated with the plan of operation carried out in the case above related, and there should be no question of choice between the two procedures. Free drainage from the line of union of the bowel can be just as readily obtained, and in a manner much more agreeable to the patient, through the vagina open at both ends as through the posterior incision of Kraske.

We have, in what has just been said, reviewed the advantages to the patient of the new operation over the Kraske. As far as the surgeon is concerned, I admit that for the majority of operators the Kraske is probably the easier method. The only real difficulty experienced in my operation was presented by the necessity of making the end-to-end anastomosis of sigmoid and rectum deep down in the pelvis—quite a different matter from anastomosing two pieces of intestine which can be brought out of the abdominal wound. From the first incision to removal of the uterus only twenty minutes elapsed, whereas resection of the bowel, removal of the sacral glands and of the fatty and connective tissue posterior to the bowel, and end-to-end anastomosis of the bowel required an additional ninety minutes.

To the gynecological surgeon, accustomed to ligating and suturing at greater or less depth from the surface, no insuperable obstacles are presented by the requirements of the operation. And if the advantages to the patient are really as great as I have represented, then it clearly becomes the duty of every surgeon attempting the removal of a high carcinoma of the rectum to qualify himself technically for accomplishing the task through an anterior abdominal incision, even though thorough removal of the disease may call for a simultaneous preliminary hysterectomy.

Conclusions.—The inherent defects and drawbacks of the Kraske operation render it justifiable only when the indications in a given case cannot be met equally as well, or better, by some other operative procedure.

In any and every given case of disease affecting the pelvic viscera of women, of whatsoever nature or wheresoever located, we have at our command operative procedures superior to the Kraske operation.

Tumors and intractable ulceration of the rectum calling for resection of the whole or part of that viscus form the chief field still disputed for the Kraske operation.

Resection of the entire rectum, or of any part of the rectum, can be accomplished in a perfectly thorough and surgical manner by perineotomy, by incisions lateral or posterior to or circumscribing the anus, by various combinations of these procedures, or by an operation devised and recently practised by the author, without the necessity of recourse to resection of the coccyx or sacrum.

The writer's operation was devised to obviate the necessity for a Kraske operation, and successfully carried out, in a case of carcinoma affecting the upper end of the rectum in a woman four months pregnant. The operation consisted in removal of the uterus, resection of the cancerous bowel, and end-to-end anastomosis of sigmoid and rectum, all performed at one sitting through an anterior abdominal incision.

The advantages of this operation over the Kraske operation, as far as regards technique, after-treatment, and comfort of the patient, are apparent.

Superiority over the Kraske, in cases of high carcinoma of the rectum, is further claimed on the following important points:

1. A preliminary colostomy and, in favorable cases, a secondary operation for the closure of the artificial anus becomes unnecessary.

2. Removal of the sacral glands and of all affected tissues posterior to the rectum can be accomplished with greater facility and thoroughness.

3. The liver can be examined for secondary cancerous nodules immediately after opening the abdomen, and, if such nodules be found, the abdomen can be closed without inflicting further unnecessary operative injury upon the patient.

The unavoidable conclusion to be drawn from the above premises is that the Kraske operation is never justifiable in women.

59 WEST FORTY-NINTH STREET.

OVARIAN CYSTS.¹

BY

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As this occasion will not admit of a full discussion of ovarian cysts, I will confine my remarks to that variety which may be termed the true ovarian cystoma. According to Fritsch, the proportion of parovarian to ovarian cyst is a fraction more than 11 per cent; Kelly's clinic and Schauta give 9.1 per cent. Olshausen claims that 95 per cent of all ovarian tumors are cysts, and of these 3 per cent are dermoids. In the words of Kiwisch, "the formation of cysts in the ovary is one of the most frequent pathological illustrations which are met with"; notwithstanding their frequency and the energy that has been expended in the study of their pathology, no universally satisfactory classification has been made, nor have their anatomic origin and etiology ceased to be questions of dispute.

To make clear the views I wish to embrace in this article on the last two questions, it is necessary that I should outline my impression of the formation of tumors in general. They are growths produced by an activity of embryonic tissue beyond the physiologic limitation or requirements of the organisms, and consist, primarily, of cells and a stroma of connective tissue. If in the active tumor-forming embryonal tissue there is a predominance of the elements from the epi- and hypoblastic cells, there will be developed a tumor of the cellular type, whereas if the elements from the mesoblastic cells predominate a con-

¹Read before the Alabama State Medical Association, April, 1901.

nective-tissue growth will be produced. Observation teaches us that the parts of the organism which are formed by the most complicated tissue changes in the embryo are most frequently the locations of tumorous formations. This fact gives support to Cohnheim's claim that active embryonic tissue, productive of a tumor, is of congenital origin, having been displaced during cell differentiation in the embryo—a theory that has more adherents than any other that has been advanced to explain the presence of neoplasms. Senn maintains that tumor-forming embryonic tissue may also be of post-natal origin. Pathologists are generally agreed that no change in tissue structure can take place without its cells being first reduced to an embryonic condition. If this is true, why may not, as is claimed by Senn, a matrix of post-natal embryonic tissue be formed and, as it were, stored away in the parts, to be afterward aroused, by irritation, local or general functional activity, to supernatural tissue proliferation? It is not uncommon to find tumors in areas that have been subjected to injuries, but which, in many instances, have undergone, seemingly, the usual repair. If the tumor is developed during the process of repair, the explanation could very well be that the injury aroused to activity a matrix of embryonic tissue of congenital origin; but when the growth is subsequent to a restoration of the parts, Senn's theory is, to me, decidedly more acceptable. Even in the former case, it seems to me, if the tumor "correspond to the type of tissue" in which it exists, it can, with equal if not more reasonableness, be maintained that some of the cells, which were reduced to an embryonic state for the purpose of repair, were arrested before becoming mature tissue, and formed the matrix of embryonic tissue which produced the tumor. As an explanation of the embryonic cells, be they of congenital or post-natal origin, remaining for a variable period of time in a latent state, it has been assumed that their activity is resisted by the general condition of the organism as well as by the local condition of the tissue in which they are deposited. The nearer normal the general systemic function and the special function of the tissue in which the tumor-forming cells are located, the more effectual is this inhibitory force. It follows, therefore, that any condition which directly or indirectly contributes to the departure from normal of the general organism or of the local tissue may be considered a negative cause of the embryonic cells undergoing active tissue proliferation. I referred above to the general and local func-

tional activity acting as excitants to a matrix of embryonic tissue.

This claim has been based on the fact that tumors, excepting carcinomata, are most frequently developed during the period of greatest general or local functional activity. I do not, however, believe that this is due to normal physiologic activity, but rather to a departure from it. On the theory that in direct proportion to the magnitude of a task to be accomplished is the liability of the means for its accomplishment to become temporarily or permanently deranged, we should expect cell vitality to be most frequently disturbed, and consequently abnormal manifestations, during the period of greatest functional activity. I wish now to call your attention briefly to the development of the ovary and the process by which the ovule is liberated. Within a few weeks after fecundation occurs, the ovary is represented in the embryo by a group of cells which subsequently are separated into subgroups by connective tissue. This tissue is first noticed sprouting up from the base of the cells—an area which represents the medullary portion of the ovary. As the separation nears completeness—spaces filled with cells being formed—other collections of cells appear on the free surface of the connective tissue, to be, in their turn, separated after the same manner as were the first. Thus the process continues until the seventh month, when a single row of columnar epithelial cells, called by Waldeyer the germinal epithelial, are formed over the greater portion of the surface of the gland. The germinal epithelial rest on a layer of connective tissue known as the tunica albuginea. This covering for the ovary is not completely formed until the third year and is continuous with the stroma, and, therefore, cannot at any time be peeled off from the substructure. The complicated manner in which the ovary is formed is, if the theory of Cohnheim is correct, one of the important factors in the causation of ovarian tumors, because in proportion to the complexness in development is, of course, the liability to irregularities or imperfections in the process. In other words, the development of the ovary being so complicated, some of the embryonic cells are liable to be misplaced during the process and never reach maturity.

If the embryonic cells, in being displaced, become entangled in the fibres of the connective tissue forming the stroma, this may be the anatomic origin of an ovarian tumor. In no other way can the stroma of the ovary be the primary seat of a true cystoma, because connective tissue cannot be transformed into

epithelium. What is true of the stroma is also true of the medullary portion of the ovary. Just here I will call your attention to a condition that is not uncommon and is apparently due to incompleteness in development—I refer to the tubules of Pflüger. These tubules are epithelial-lined pouches extending into the substance of the ovary and opening on its free surface. To me no more plausible theory has been offered in explanation of their presence than that the connective-tissue stroma stopped short of full development and thereby failed to completely surround all of the groups of cells. If this is true, is it not probable that some of the unenclosed cells shared in the incompleteness and remained embryonic, therefore capable of being stimulated to active tissue proliferation? This theory supports the claim that ovarian cystomata may have their origin from the tubules of Pflüger.

Turning to the spaces—Graafian follicles—formed by the connective-tissue stroma and containing cells, we find one of the cells much larger than the others; this is the ovule. The smaller cells not only surround the ovum, but they also line the inner surface of the follicle, and by multiplying and disintegrating distend the space until its wall and also the tunica albuginea rupture. When this occurs the ovule makes its escape, hemorrhage fills the vacancy, and in a few days cells bud out from its wall into the blood clot; connective tissue is formed and by contracting leaves only a small scar. In the formation of the corpus luteum, the cells having become embryonic for the purpose of producing the necessary tissue changes, may not some of them fail to reach maturity and remain as embryonic tissue susceptible of being stimulated to tumorous formation? Here then is a theory upon which may be based the claim of the advocates of the corpus luteum as the primary seat of ovarian cystoma.

In an interesting contribution by Dr. Mary D. Jones the claim is made that inflammation “is the beginning and origin of ovarian cystoma.” By inflammation, I take it, Dr. Jones means the result of tissue infection by micro-organisms, as this is the only true inflammation. I firmly believe inflammation is an important factor in the etiology of these tumors; that it may, in accordance with the theory of Senn, above mentioned, be responsible for the presence of a matrix of embryonic tissue in the ovary; but I am not prepared to accept the sweeping statement that it is the “origin of ovarian cystoma.” I also recognize

in it a probably frequent excitant of a preformed matrix of embryonic cells to active tissue proliferation, but I am constrained to believe that there are other conditions that act in the same manner. Any tissue that has a function as complicated and arduous as is the ovarian is liable to variation in the uniformity of its activity. I am of the opinion that a variation in the cell vitality of the ovary, manifested as a functional disturbance, is not infrequently responsible for existing embryonic cells being aroused to tumorous formation. This theory is supported by the clinical observation that a greater per cent of nulliparas than of multiparas have these tumors. It is claimed that pregnancy and lactation afford periods of ovarian inactivity. If inflammation is "the only condition that can produce a cyst of any nature," we should certainly find ovarian cystoma proportionately more frequent in the multipara than in the nullipara, because she is so much more exposed to conditions producing pelvic inflammation. I do not question that the walls of every ovarian cyst present microscopically many of the tissue changes common to inflammation, short of destruction. If Griffith is correct, these changes may be called regenerative or reproductive, though no loss of tissue has occurred. He claims that "the bulk of the solid parts of all ovarian tumors is composed of well-developed connective tissue, or of a spindle-cell stroma identical with that of the normal ovary, or of both of these constituents." It appears from the foregoing that no part of the ovary is exempt from being the primary seat of a cystoma.

So much for the origin and etiology of ovarian cystoma. I will now briefly review the pathology as well as give some interesting clinical observations. For the purpose of facilitating description I will adopt the usual classification and consider that there are two kinds of cystoma, *viz.*, papillary and glandular; though I am very much inclined to the view expressed by Thoma that "the great frequency with which these combined forms of proliferous cysts occur shows that they represent a single variety of tumor." Griffith also says, "when it is remembered that mixed papillary and proliferating (glandular) cysts are by no means rare, it appears most probable that they arise from the same structures." Primarily they both are composed of cells and connective tissue. In the papillomata the connective tissue is in excess and is "lined by a single layer of columnar cells," often ciliated, "except at points where new papillae are being formed, when the layers are multiple" (Griffith). Rarely

papillary growths are found on the surface of the ovary without microscopical evidence of a pre-existing cyst. The possibility of their developing *de novo* from the surface is denied by many. It is maintained that when they so appear, the papillæ ruptured the cyst early and by continued growth destroyed the evidence of its existence. In opposition to this theory Uffenheimer claims that the investigations at the Berlin Pathological Institute proved that the surface epithelium of the ovary proliferates and penetrates into the substance of the gland, forming pouches from which the papillomatous cyst develops. Papillæ are found on the outer surface of 33 per cent of cystic papillomata. When the peritoneal cavity is invaded papillæ are detached from the parent growth and distributed over the peritoneum, forming new foci and causing the rapid development of ascites as well as many adhesions. The growth of a papillary tumor, as a rule, is slow. It rarely attains a size larger than a cocoanut. About 50 per cent are bilateral. Some claim that they have their origin from the medullary portion of the ovary, and frequently develop downward between the folds of the broad ligament. It has never been proved that a papilloma can become a carcinoma, though the two diseases have, not infrequently, been found in the same patient.

CASE I.—Through the courtesy of Dr. R. F. Michel, of Montgomery, I saw, not a great while since, a patient with a papillary ovarian cyst, the course of which illustrates the necessity of early operation. She was a multipara, 43 years old; previous history good. A tumor, the size of a quart cup, of the right ovary was diagnosed and she was advised to have it removed, but said she would consider the operation after returning from a visit she expected to make of a couple of months. While absent her abdomen began to enlarge very rapidly and when she returned it was enormously distended with fluid. On opening the abdomen I found practically the entire peritoneal surface covered with papillæ. The lower portion of the abdominal cavity was choked with papillary masses. No further effort was made to remove the tumor, as the free hemorrhage that would have been produced would have terminated her life on the operating table. Supposing it had been possible to remove it, I do not think any good would have been accomplished by doing so, as the peritoneum was so extensively involved. It is, seemingly, true that the removal of the parent growth checks the disease, if the peritoneum is not too extensively involved. In fact, some gynecolo-

gists claim that they have been encouraged to undertake a second operation by the disease not only being checked, but rendered less severe as a result of a former effort in which they were not able to remove the tumor. The case reported survived a number of months after leaving the Hill Infirmary. I am of the opinion the peritoneum was so slightly, if at all, involved at the time of the first examination that if she had then accepted the operation she would have made a good recovery.

We will now turn our attention to the most frequent of ovarian tumors, *viz.*, the glandular cystoma. It is ten times more common than the papillary cyst. Kelly has found both ovaries involved in 6 per cent of his cases. It is usually multilocular or gives evidence of having been. As a rule it grows very rapidly and, in the absence of interference, reaches an enormous size. Unlike the papillary, its cells are in excess of its connective tissue and are polymorphous, though the columnar predominates. The first stage of its development is a group of proliferating cells. As the mass increases the cells in its centre undergo a degenerative process, forming fluid. Thus the primary cyst is begun. At first the wall consists of a comparatively loose connective tissue, which is soon reinforced by a dense, firm structure, formerly the covering for the ovary. The wall, therefore, of the primary cyst may be said to consist of two layers of connective tissue and develops *pari passu* with the cell changes in the cavity. The cells lining the inner surface of the cyst are stratified. At some points the columnar cells proliferate more rapidly than at others, causing a cellular nodule, which is supported by connective tissue derived from the inner layer of the wall. This tissue, by encompassing a variable number of the proliferating cells, completes the loculi for a secondary cyst. But as the wall of the secondary cyst is not strong, it often ruptures, forming a communication with the parent cyst. A continuation of this process is the cause of the not uncommon honeycombed appearance of glandular cystoma. As the wall of the cyst contains its blood vessels, their rupture often causes hemorrhage which discolors the cystic fluid. It has been claimed that the cells of a glandular cystoma may lose their proliferating power and entirely disappear, in which case the growth of the tumor would cease. I think this is very doubtful, and if it is true it is of so rare occurrence as to be of no practical importance. Ordinarily the contents of these tumors are not infectious, and therefore general peritonitis does not usually fol-

low its escape in the abdominal cavity. Garrigues claims that in 8 or 10 per cent of all operations for ovarian cysts evidences of rupture can be found. Glandular cystoma usually grows upward and is attached to the uterus by a pedicle which varies much in size and length. Twisting of the pedicle by rotation of the tumor sometimes occurs. If it is sudden and sufficient to cut off the blood circulation, the tumor will become gangrenous; but if the twisting is gradual, adhesions may form, through which nourishment will be supplied, enabling the tumor to live and grow, though it becomes entirely separated from its original attachment. Dr. J. Knowsley Thornton found the latter true in four cases out of 600 ovariectomies. These tumors often become carcinomatous, though they may, from a practical viewpoint, always be regarded as malignant, because, uninterfered with, their course is toward destruction of life.

I must not longer tax your patience by yielding to my inclination to enter into a clinical review of this subject; however, I hope by presenting ten very large multilocular ovarian cysts, removed during the last year or so from as many patients, to draw out a full clinical discussion.

By considering the folds in these sacs you may get an idea of the size of each tumor. The smallest was between two and three gallons in size. Of these ten cases one was unfortunate in its termination, dying on the fourth day following the operation. Time will not admit of my giving a history of each case, but the specimen marked number six came from a patient whose history illustrates so forcibly the possibilities of the art of surgery that I am constrained to briefly review it.

She was referred to me by my friend Dr. Wilkinson, of Prattville, Alabama. White, multipara, about 50 years old, with a good family history. Emaciation was extreme, pulse was rapid and thready. The distension was so great that she could not lie down and caused her respiration to be shallow and hurried. After nourishing and stimulating her for several weeks, I had the anesthetizer to undertake to etherize her for the operation. Under its influence she became very much cyanosed, and her pulse and respiration were so bad that it had to be discontinued. It occurred to me that there was fluid outside of the tumor, the removal of which would give her more breathing space. Acting on this supposition, after allowing her to rest a few days, I made an opening, under cocaine anesthesia, three inches below the ensiform cartilage, into the peritoneal cavity, through which about

one quart of ascitic fluid escaped. Her breathing was slightly improved. I finally had her anesthetized with chloroform and opened the abdomen. After drawing the fluid from the cysts and separating many adhesions, I found the lower portion of the tumor to be a solid mass wedged and firmly adhered in the pelvic cavity. This was with great difficulty detached and delivered. In breaking loose the adhesions between the solid mass and the pelvic wall in front I opened a cavity containing several ounces of pus. The peritoneal cavity was well and frequently flushed with hot salt water during the separation and delivery of the tumor. The oozing, which was quite free, was controlled by pressure from a Mikulicz drain. A large quantity of salt solution was left in the abdomen. The patient was returned to bed, the foot of which was elevated. She reacted quickly and well. Her recovery was uninterrupted. You will observe that the solid and cystic portions of this tumor are separate. In other words, the cystic portion is not a degeneration of a solid mass, but is a typical multilocular ovarian cyst. My opinion is that the cystic and solid portions of the tumor had separate loculi of development.

21 SOUTH PERRY STREET.

SACTOSALPINX HEMORRHAGICA.¹

BY

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THE disease under consideration has been denominated hematosalpinx, hemorrhagic infarction of the Fallopian tube, and sactosalpinx hemorrhagica. The last term, used by A. Martin, it seems to me more accurately describes the condition; hence its selection for the title of this article.

Under the name sactosalpinx hemorrhagica are included all accumulations of blood in the Fallopian tube not due to pregnancy in the affected tube. Cases have been reported where pregnancy in one tube has been associated with hemorrhage in the other. Of course the etiological bearing of the pregnancy in a case of this kind is always open to conjecture.

¹Read before the Obstetrical Section of the New York Academy of Medicine, March 28, 1901.

For many years sactosalpinx hemorrhagica in a woman with a normal uterus, a double uterus, or a uterus bicornis, due to congenital obstruction to the egress of menstrual blood, or, in rare instances, to operations or the use of escharotics that have produced obstruction, has been well recognized, and this class of cases will not be considered further than to state that E. Simon collected 70 cases of atresia, 51 of which were congenital and 19 acquired. Of the 19 acquired cases, 8 occurred after delivery or abortion, 2 were due to traumatism, 3 to acid injections, and 5 to infectious diseases. Of these last named, 1 was due to typhus fever and diphtheria, 3 to measles and scarlet fever, 1 to pneumonia, and 1 was of unknown origin. Twenty-two of these cases had sactosalpinx hemorrhagica and 14 died. Dührssen describes a case due to massage that was operated on by Gusserow; pus was found in the ovary and the tube was markedly distended with blood.

Many modern observers have considered all accumulations of blood in the Fallopian tube, where there is no obstruction or malformation in the uterus, vagina, or vulva that would prevent the escape of menstrual blood, due to ectopic gestation. Before going further it is well to remember that it is a recognized fact that blood escapes from the mucous membrane of the tube during menstruation. Chapin Minard observed in a case of inverted uterus, during the menstrual flow, that blood escaped from the dilated uterine end of the tube. A similar fact has also been observed by Landau and Reinstein.

From the report of a number of cases of "hematosalpinx," it is evident that several operators of prominence do not believe that they are all due to extrauterine pregnancy; but in most instances the reports leave room for doubt as to the exact etiology. E. B. Cragin reported to the New York Obstetrical Society in December, 1892, six cases of "hematosalpinx and hematoma resembling ectopic gestation"; but in the discussion it was freely questioned whether or not these were not cases of ectopic gestation, and, in closing, Dr. Cragin stated that it was very possible that some of his cases were ectopic, but did not believe it proper, in the absence of positive proof, to consider all cases of accumulations of blood in the tubes or pelvis due to extrauterine pregnancy.

IN THE AMERICAN JOURNAL OF OBSTETRICS for 1894 W. W. Russell reported a case in the service of Dr. H. A. Kelly which was very similar to the cases I will report this evening. He

described the condition as "hemorrhagic infarction of the Fallopian tube," which, I believe, is a very improper term to use for the disease.

Following is the report of two cases of sactosalpinx hemorrhagica that I have recently operated on:

Miss J. P., Record No. 4820, was admitted to Lebanon Hospital December 12, 1900. She was 17 years of age, menstruated first at 13, always every four weeks, and seven days at a time. There was pain during the first two days. Excepting measles and whooping cough, she had had no sickness previous to the one under discussion. December 10 she complained of pain diffused over the abdomen, no chill, no vomiting, bowels constipated. December 11 the pain became localized in the right side of the abdomen. December 12 the pain was less severe, but still localized in the right side, she vomited a greenish material once or twice, and was sent to Lebanon Hospital with the diagnosis of appendicitis. Her condition was as follows: Temperature 102° F., pulse 108, respiration 28; by midnight, temperature 101° , pulse 96, respiration 24. December 13, A.M., temperature 100° , pulse 100, respiration 24. In the hospital a tumor was found low down in the right iliac fossa, but the right rectus muscle was not as rigid as you would expect to find it with appendicitis, so the diagnosis of appendicitis was questioned. The pain continued and was more severe than during the previous day: vomited a greenish material twice; bowels were moved by enema, which was the first movement since the disease began (December 10). She began to menstruate on the second day of her disease (December 11). There had been no irregularity or change in the menstrual flow. During the afternoon the abdomen was opened and a dark-colored, globular tumor, four or five inches in diameter, was found, low down, anteriorly and above the right broad ligament and extending to the median line. It was slightly adherent to the neighboring structures, including the appendix. The pedicle of this tumor was so small, not over half an inch in diameter, that at first I did not make out the nature of the tumor, especially as it was not situated behind the broad ligament where you ordinarily find a tumor of the Fallopian tube. There was no free blood in the peritoneal cavity; but there was serous fluid and an injected condition of the blood vessels, giving evidence of a quite extensive peritonitis. The ovary was drawn up by the tumor, and it and the tumor were removed after tying a catgut ligature around the pedicle. The

pedicle was found very tightly twisted, and the broad ligament was so drawn up that after the tumor was cut away the pedicle retracted and pulled out of the ligature; but it did not bleed, the strangulation and resulting thrombosis was so complete. This was not trusted, but the pedicle was again ligated and the peritoneum stitched over it. The fimbriated extremity was entirely closed, as was the lumen of the tube near its uterine end. The tumor was found to consist of the markedly dilated Fallopian tube, that had been completely strangulated near the uterine end by several distinct and complete twists on its long axis. The twists were close to where the pedicle was cut and so were untwisted. The contents were entirely fluid, dark in color, and contained no clots. They were not examined microscopically, but the tumor has been most carefully examined and no evidence whatever of tubal pregnancy found.

The left tube and ovary were found to be normal and were not removed. The abdomen was closed with catgut after the ordinary layer method.

After the operation the temperature, pulse, and respiration became normal; but in twenty-four hours they rose and the patient developed pneumonia and died seven days after the operation. It was impossible to obtain an autopsy.

What part peritonitis, which existed before the operation, played in causing death I am unable to state. At any rate, the abdomen was very slightly distended and the wound was apparently healthy.

The pathologist's report is as follows:

"The tube was 8.9 centimetres long and the diameter at its most dilated portion was 3.2 centimetres, the diameter varying throughout the entire length of the tube. About 3.2 centimetres from the uterine end there was a distinct bend in the course, at almost right angles to its long axis, and bound down to the remaining part of the tube by firm adhesions. The specimen had already been opened along its long axis and emptied of its contents when received for examination. Its internal surface presented an irregular lumen, with pockets here and there. The color of the external surface was dark red and almost black in parts, and the presence of recent adhesions was noticed on the peritoneal surface. Upon making a transverse section through the tube the same dark red color was markedly perceptible. The wall showed irregular thicknesses, varying from 3 millimetres to 1.9 centimetres.

Microscopical Examination.—The epithelial cells were flat cuboidal in form, appearing much like the endothelial variety of cells; the greater number of sections, however, showed no epithelial cells whatever. The characteristic folds of the mucosa were lost and the blood vessels were filled with blood. The whole mucosa was injected. In the muscular coat the blood vessels were markedly dilated and filled with blood, the muscular fibres were separated by extravasations of blood which had taken place into this layer. There was an infiltration of small round cells and a marked inflammatory process just below the peritoneal coat. In small areas distributed throughout the section, the presence of a purulent inflammation was observed, as indicated by the presence of polynuclear leucocytes.

“No decidua vera or chorionic villi were found, although most extensively searched for.”

The second case, Mrs. R. J., Record No. 4850, was admitted to Lebanon Hospital December 27, 1900, aged 26 years. Married four years. Never pregnant. Menstruated first at 16, regularly every four weeks, and six days at a time. Complained of cramping pains after flow. Stated that she had always been well until three months before she came to the hospital, since when she had pain, at times severe, low down in the left side of the abdomen, and since December 26, 1900, she had had considerable pain while urinating, but was not obliged to pass her urine oftener than once in six hours. Appetite poor, bowels moved once a day.

On entering the hospital (December 27, 1900) her condition was as follows: Temperature 101° F., pulse 116, respiration 28. Complained of pain and tenderness across the entire lower portion of the abdomen, which was most marked low down in the left side. On examination an immovable, slightly fluctuating tumor was found that extended from the symphysis pubis nearly to the umbilicus. It extended both sides of the median line, but further in the left iliac fossa than the right. I took it for an inflamed ovarian cyst that had become adherent, and an ice bag was applied. At the end of four days the pulse and temperature became normal, but the tumor remained. Pain had markedly decreased, but she still complained of severe pain while urinating. During the next ten days her temperature would at times touch 100°, but most of the time it was normal; pain in the left iliac fossa gradually diminished, so that the ice bag was used only part of the time. There was marked constipation that required the free use of cathartics and enemata. In spite of

everything that could be done, there was severe pain on urination. Repeated examinations of the urine showed it to be normal.

January 10, 1901, an incision was made in the median line of the abdomen, extending from the symphysis to the umbilicus, and a globular, but in places more or less irregular, dark-colored, fluctuating tumor was found, filling the entire space in front of the uterus and broad ligaments and extending nearly to the umbilicus. It was extensively adherent, especially anteriorly and inferiorly, to the neighboring structures. The adhesions were separated without much difficulty, and I was surprised to find that the ovary was not involved and that the tumor was the markedly dilated left tube, with a pedicle that contained several distinct and complete twists of the tube close to the uterine end. It was not more than half an inch in diameter. A catgut ligature was applied and the tumor removed, leaving the ovary. The right tube and ovary were normal and were not removed. There was no free blood in the peritoneal cavity. From numerous points in front on the uterus and broad ligaments there was very free oozing of blood, and it was necessary to pack with gauze in order to arrest the hemorrhage.

Once during convalescence the temperature was 100.4° F., otherwise she made a normal recovery and was discharged cured February 3, 1901.

The tumor consisted of a dilated tube, with the dilatation much more marked as you approached the fimbriated extremity. The fimbriated extremity was entirely closed, as far as could be determined, by an old inflammatory process. The uterine end was closed by several complete twists on its long axis. It was filled with a dark red fluid that contained no clots or hard substances.

Following is Dr. Schnaper's report on the pathological condition:

"The tube shows extreme irregularities, beginning at the uterine end with an apparently normal diameter for about 6 millimetres, then, being twisted on its long axis, forms adhesions with a second part which is about two and one-half times the diameter of a normal tube. Then the tube becomes immediately dilated into a cyst-like cavity, its outer end being closed by the agglutination of the fimbriated extremity.

"The external surface is dark red in color and shows areas where adhesions have been torn off. The thickness of the wall

varies and also presents the same red appearance. The character of the contents was noticed, due to the fact that the tube had been opened before it was presented for examination. The internal surface was smooth, with slight indications only of the folds found in normal Fallopian tubes.

“*Microscopical Examination.*—In place of the high cylindrical ciliated epithelium an epithelium of the flat cuboidal form was found and in the majority of sections was lost altogether. The blood vessels were dilated and filled with blood, and there was an extravasation of blood throughout this layer. The folds are altogether obliterated. The blood vessels of the muscular layer are dilated and filled with blood and there is a free hemorrhage into the layer. There are evidences of a marked inflammatory process in the sections taken from the neighborhood of the twist in the tube.

“No decidua vera or chorionic villi were found.”

These two specimens that I show you have been very much shrunken by the fluids that have been used to preserve and harden them, and also very much mutilated by the pathologist's knife, yet enough remains, taken with the mounted sections that I also present, to demonstrate the process that has been going on. Primarily there has evidently been a disease, probably of an inflammatory nature, that caused the closure of the fimbriated extremity: still the process was not of a kind that would produce pus. Next the tube became twisted on the long axis and obstructed the lumen near the uterine end, and so prevented the menstrual blood and secretions from the mucosa from escaping from the affected tube into the uterus. The fimbriated extremity being closed, escape into the peritoneal cavity was prevented. In each instance the tube became gradually dilated as the blood and normal secretion from the tube escaped into the closed cavity of the tube. The outer portion of the tube, which is not as strong as the portion nearest the uterus, is markedly dilated, while as you approach the uterus it is less and less dilated. In the more distended portions the normal folds of the mucosa have been entirely lost, while in the less dilated parts they have been greatly diminished. Through pressure from the contents of the sac, and also from the escape of blood into its walls, the nutrition of the tubal epithelium has been so impaired that it has been entirely destroyed in places, and where it does exist it has lost its cilia and appears as a flat cuboid epithelium. As the tumor increased in size, the blood vessels in the twisted portion became

more and more obstructed, first principally the veins and then the arteries. The peritoneal covering, as well as all the other layers of the tube, have become intensely engorged with blood, and a species of inflammatory process, as was indicated by the symptoms as well as the pathological findings, has taken place and produced adhesions that in the first case, which was operated on much earlier than the second, were slight. The second case had passed the acute inflammatory stage and the adhesions were extensive and so supplied with blood vessels that it was necessary to pack in order to arrest the hemorrhage.

In each instance the contents were a dark reddish-brown fluid without clots. Klebs states that this is due to the action of the secretion of the mucous membrane of the tube on the blood. It is in marked contrast to the clots of blood with which we are all familiar in tubal pregnancy.

Unquestionably a large majority of accumulations of blood in the tube are due to ectopic gestation; but these two cases demonstrate that it is not an invariable rule.

68 WEST FIFTIETH STREET.

CESAREAN SECTION, WITH REPORT OF A SUCCESSFUL
OPERATION ON PATIENT WITH A RACHITIC PELVIS.

BY

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THE history of this operation is replete with interest, for it takes its place with the oldest operations performed, long antedating the surgery of the barbers and that of the true surgeons who came later. The name is usually supposed to have originated from the statement that Cæsar was ushered into the uncertainties of life through the medium of this operation; but Pliny claims that the name originated, not from Caesar's birth, but from *cadere*—meaning to cut—and that Scipio Africanus and Manlius were both delivered by this operation.

Numa Pompilius is accredited with the authorship of a Roman law requiring all pregnant mothers who died to be delivered of the child before burial.

For a long time this operation was considered only justifiable

upon a moribund mother in the hope of delivering a viable child. "The first recorded operation on a living woman was performed in the year 1500, in Switzerland, by one Jacob Nufer, a butcher, who is said to have saved the life of his wife in this way."¹ It is also stated that he operated many times. Later this passed from his hands to those of the barbers, who were the forerunners of the surgeons. In 1610 Trautman, a German, delivered a child through an incision in the uterine wall, his case being one of hernia of the gravid uterus. "In 1881 Rousset, a Frenchman, published a report of nine cases, to which Caspar Bauhin added six in his Latin translation."¹ Many have contended that these were not true Cesarean sections, but celiotomies for ectopic pregnancies.

The maternal mortality was so great in the early history of this operation that Ambrose Paré and Mauriceau condemned it, and it fell into bad repute for a long period, only to be revived about the beginning of the last century, when uterine sutures were first advocated. The maternal mortality still remained excessively high until Porro suggested and put into practice the amputation of the uterus and inclusion of cervical stump in the abdominal incision. This was done in 1876.

The greatest advance was made, however, in the perfection of the operation by Säger, of Leipzig, in 1882, when he proposed the closure of uterine wall with multiple sutures.

Since that time the operation has varied only in the methods of closing the incision in the uterine and abdominal walls and in the materials used for this purpose, in addition to the marked improvement in surgical technique.

The maternal mortality has been very much reduced by, first, the strict aseptic technique; second, avoidance of serious hemorrhage; third, the proper suturing of abdominal and uterine walls; fourth, the deliberate performance of the operation when proper assistants can be procured, aseptic surroundings secured, the best light for operative purpose utilized, and the tissues are not mutilated by vain efforts at delivery and infection has not occurred from frequent and careless examinations; fifth, better care of the patient after the operation has been performed.

The indications for the performance of the operation are usually classed as positive or absolute, and relative.

The positive indications are those which make the delivery of the child through the natural passages impossible even after

¹Jewett: System of Obstetrics.

symphyseotomy or embryotomy. This is true in greatly contracted pelves due to arrested development, rachitis, osteomalacia, or the obstruction of the normal passage by tumors developing in the pelvis or soft parts. The tumors may be carcinomata, sarcomata, fibromata, or those partaking of characteristics of more than one variety.

Symphyseotomy, which has been given more prominence within recent years, has restricted the performance of Cesarean section to such cases only as have a conjugate diameter not exceeding $2\frac{1}{2}$ inches, with a well-developed child at full term.

After deciding that the indications are positive, it then becomes necessary to decide whether a Cesarean section shall be performed or a Porro operation. If the Cesarean section is performed we must bear in mind that we leave the patient in condition to render the same operation possible at some future time.

The indications for the Porro operation, as given by J. C. Cameron in the "American Text Book of Obstetrics," are as follows: "First, if the uterus is infected the chances of the mother's recovery are much enhanced by the removal of the infected organ; second, if there is a partial or total obstruction of the parturient canal by tumors; third, if there is a carcinoma of the uterus, especially of the cervix; fourth, osteomalacia; fifth, if complete inertia occurs during the course of the operation."

H. J. Boldt gives as absolute indications for Porro operation the following: "First, all women who have a living child *in utero* at term, or nearly so, and in whom the pelvic diameters are too small for the delivery of a living child *per vias naturales*; second, when the child *in utero* is dead and infection of the organ has taken place; third, in cicatricial atresia of the vagina to such an extent as to prevent delivery through the normal route; fourth, where a neoplasm is present in the column of the uterus, preventing the passage of a living child with safety to the mother; fifth, in such cases of rupture of the uterus in which an abdominal section is indicated and suture of the uterine wall is unsafe; sixth, in some cases of hemorrhage from the uterus subsequent to Cesarean section."

These indications confine the operation of Sänger to contracted pelves due to rachitis or arrested development, or in cases with indications for the Porro operation in which the shock has been so great that the patient will not survive a prolongation of the operation.

The Relative Indications.—These are very difficult to deter-

mine; in fact in many instances the final decision will have to be made by the patient after placing the facts clearly before her. These indications are present when the interference is sufficient to make the delivery of a living and viable child through the natural passages doubtful, as a conjugate diameter from $2\frac{1}{2}$ to $3\frac{1}{8}$ inches, or tumors of the soft parts producing obstruction.

The operation, while it has now been so much improved as to occupy a well-deserved place in obstetric surgery, will always be undertaken by the conscientious surgeon with a considerable degree of hesitancy.

The case operated on by me, a report of which is appended, was a patient of Dr. J. D. Cromer, who rendered most able assistance, as did Dr. S. T. Barnett, both of Atlanta.

The modern operation may be divisible into ten stages, each following the preceding in regular sequence.

1. *Deliberate Performance of the Operation.*—Having determined that the operation must be performed, it then remains to decide as to the best time for its performance. Some operators wait until labor begins, believing that such a plan insures better drainage through a naturally dilated cervix, and also adds to the viability of the child on account of the uncertainty of estimating the period of gestation with accuracy. On the other hand, there are many advantages accruing in the deliberate performance of the operation, which more than counterbalance the ones adduced in favor of delay. In such a case more care and attention may be given to asepsis, both as regards patient and her surroundings. More competent assistants can be had usually, for these can be procured readily and we are not forced to take whomsoever we can get, as may be the case when delay is advised. Then good light, either natural or artificial, in a well-arranged operating room, may be obtained instead of artificial light in an ordinary dwelling, which we may be forced to use.

Infection is also less likely to occur on account of fewer vaginal examinations, and less traumatism to the soft parts by the efforts of the contracting uterus endeavoring to force the child through the natural passages. For these reasons the deliberate operation is the much-to-be-preferred operation, being performed two or three days before the estimated termination of gestation.

This gives opportunity to transfer the patient to a hospital where the advantages to be mentioned under the next head are

to be found, as well as comforts and conveniences of good nursing, with surroundings conducive to the best of care and attention.

In addition, no efforts have been made to deliver the child by manipulations with hands or instruments, and the tissues are not mutilated and torn, making sepsis less likely than when such efforts have previously been made.

2. *Aseptic Surgical Technique.*—When the deliberate operation has been determined upon, the surgical technique may be as carefully attended to as for any abdominal section. It is needless to detail the manner of preparing the patient by placing her on light diet, cleansing abdomen, sterilizing instruments, vessels, dressings, operator's and assistants' hands, etc., as they do not differ from any other abdominal operation and should be attended to with the most scrupulous care.

An important step is to carefully isolate the abdominal viscera with sterile gauze pads, to prevent the entrance of amniotic fluid when uterine cavity is opened. If the uterine cavity has been emptied and cleansed, the cervix dilated naturally or artificially, this latter being more satisfactorily accomplished before making the abdominal incision, then infection is less likely to occur from retained lochia or amniotic fluid. Dilatation should be accomplished with one of the steel dilators, and, if before the operation is begun, should be dilated through the vagina, in which case the danger of liberating the amniotic fluid in the abdominal cavity is reduced to a minimum, as the fluid will in all probability escape through the cervix and vagina. If, on the other hand, this is postponed until delivery has been completed, then the cervix may be dilated from above by the fingers or by steel dilators.

The vagina must be most carefully cleansed, as much care being exercised as for a vaginal hysterectomy. It may not be amiss to describe the usual method adopted both for cleansing abdomen and vagina. The abdomen and vulva are shaved carefully the night previous to the operation, abdomen scrubbed with nail brush, using plenty of green soap and water, then using alcohol and bichloride of mercury 1:1000; a sterile pad immersed in 1:1000 bichloride of mercury is fastened to the abdominal wall and allowed to remain until removed on operating table; the scrubbing is repeated as above, using normal salt or sterile water to complete the process. The vagina is given a copious douche of bichloride of mercury 1:1000, or lysol 2 per cent, the night before. When on operating table, vagina is

cleansed with green soap and sterile water, using gauze sponge on holder to scrub with, then follow with lysol 2 per cent. The vulva and area adjacent are cleansed as abdomen.

The hands and arms of operators and assistants are scrubbed for five minutes, using plenty of hot water and green soap, with good stiff nail brush; the nails and adjacent ungual spaces carefully cleansed. The scrubbing is repeated in from eight to ten minutes, and a paste of chlorinated lime and carbonate of sodium is thoroughly spread on hands and arms as high as elbows. This is rinsed off with sterile water; the hands and arms to elbows are immersed in solution of bichloride of mercury 1:1000, and allowed to remain three minutes, and finally rinsed in sterile salt solution or sterilized water.

After the completion of the delivery the fragments of membrane and all large blood clots are carefully removed by sponging with sterile gauze sponge and plenty of hot salt solution. This latter serves a double purpose: it cleanses the uterine cavity, and if solution is from 108° to 115° F. it stimulates the uterus to more firm contraction.

3. *The Abdominal Incision.*—This may be made short or long, depending upon the views of the operator. If made short, then the uterus is incised in the abdominal cavity and the child is delivered through both openings. The danger of allowing the amniotic fluid to escape into the abdominal cavity, causing infection, is the strongest objection to this plan. This may be remedied by carefully walling off the abdominal viscera by use of gauze pads, but it is next to impossible to prevent some escape into the abdominal cavity.

When the long incision is made the uterus may be delivered through the opening before making an incision into it, and, after carefully isolating with sterile gauze pads, the amniotic fluid can be readily prevented from finding its way into abdominal cavity, and infection from this source is more easily prevented.

The possibilities of hernia are a little greater in the long incision, but if tissues are carefully approximated and technique is perfect the danger from this should not be increased. In either case the incision is made, to begin with, about six inches in length, extending from just above the umbilicus to the symphysis pubis in the median line, through the skin and superficial fascia separating the muscular tissue at linea alba, until the peritoneum is reached, and, carefully lifting this with forceps, nicking and introducing the finger as a guide to prevent wounding

the abdominal viscera, the incision is enlarged as much as is necessary. The objections to the long incision are the increased risk of hernia on account of non-union or imperfect union, and the liability to hemorrhage and infection from more surface being exposed. These are, as a rule, more theoretical than real on account of the improvement in technique and coaptation of tissues.

4. *Uterine Incision*.—This incision is also made long or short, to conform to the one made in abdominal wall. If long, then one on the anterior surface of the uterus in median line, extending from just above internal os to the fundus uteri. This expedites the delivery of child and avoids the more annoying asphyxia, if the uterus is not too tightly constricted in the effort to control hemorrhage.

The incision may be directly over attached placenta, and in such case a bold incision into this does not, as a rule, lead to such serious hemorrhage; in fact in my case the small amount of blood lost through this means was quite a gratifying surprise. It would, however, be much preferable to avoid this, if possible, but when the uterus has been incised no time must be lost before accomplishing delivery.

Marey advises making the incision as near the centre of the placental attachment as can be determined, believing by so doing the uterine contraction will force the placenta more readily through the opening and with but little loss of blood and practically no asphyxia to child. Fritsch's incision has been highly indorsed by some; this consists in making the incision in the uterus transversely and high up near the fundus. "The advantages claimed: easy extraction of the child; reduction of hemorrhage to a minimum, as wound runs parallel to the main vessels; good control of bleeding after suture, as the stitches are passed at right angles to the main vessels; reduced risk of subsequent hernia, as the abdominal wound can be made higher up in abdominal wall than would otherwise be possible; easy prevention of the entrance of blood and liquor amnii into abdominal cavity." My own limited experience has shown that all the advantages claimed for the transverse incision are more theoretical than practical.

5. *Avoidance of Serious Hemorrhage*.—We must remember, in making the abdominal incision, that the possibilities of serious hemorrhage are very great and each drop of blood lost unnecessarily here but adds to the aggregate loss; hence we must be very

careful about our hemostasis and catch promptly every bleeding vessel before it has allowed much blood to escape; then, if necessary to get out of the way the numerous hemostatic forceps, we may ligate with fine catgut such vessels as will not be controlled by torsion or bruising from hemostats.

After the abdominal incision has been properly attended to, then it is wise to place a folded gauze towel or piece of rubber tubing around the lower segment of the uterus before making the incision into the uterus, and entrusting this to a reliable, non-excitabile assistant, who will constrict this if any hemorrhage results when the uterine wall is incised. A bold, free incision is less likely to cause hemorrhage than a timid, tentative one, as the child is delivered more rapidly and the uterus is given an opportunity to contract more promptly.

After delivery of the child, if the uterus shows a disposition to contract, then no great haste need be exercised in the delivery of placenta, for by waiting a short time Nature is given an opportunity either to partially or completely detach this and thereby prevent serious hemorrhage. If, on the other hand, the uterus does not seem inclined to contract promptly, it is best to forcibly detach placenta and cleanse the uterus with hot salt solution, as previously mentioned.

6. *Delivery of Child*.—The rapid delivery through a free incision, while it makes a weaker uterine wall, is more likely to lead to the delivery of a child without serious asphyxia. With the shorter incision and the performance of version, when necessary, more time is consumed in the extraction of the child and more risk to the child is caused by the more profound state of asphyxia which is apt to result. The shorter incision has the advantage in that there is less danger of hemorrhage, and when convalescence ensues a more substantial union has taken place and the uterus is left in better condition for future pregnancies. If the hemorrhage is not excessive after the child has been delivered, no great haste need be exercised in the ligation of the cord, for here again we must not deprive the child of the oxygen which it needs to promote a vigor and strength at the beginning of extrauterine life. But a short time may be allowed to elapse, sufficient to note the diminution in the force of impulse in the cord; when this is observed, ligate and cut the cord as in normal labor and turn child over to a capable nurse or assistant, to resuscitate if asphyxiated, or take care of until operation is completed.

7. *Delivery of the Placenta.*—After the child has been delivered and the cord severed, then attention must be given to the placenta. If this has been extensively injured in making the incision or detached during the manipulation of the child, then it should be hastily removed without waiting for detachment to take place naturally. If, on the other hand, there be no very free hemorrhage and the placenta has not been mutilated or cut, then it is wise to wait a few minutes for some loosening to occur and minimize risk of hemorrhage. The slightest evidence of excessive hemorrhage should lead the assistant to tighten the elastic band or towel placed around the lower segment of uterus, and the hemorrhage may be controlled by this means.

8. *Suturing the Uterine Wall.*—The earlier methods of suturing the uterine wall consisted of a single row of sutures passing through the uterine wall and peritoneum. Säger, of Leipzig, recommended the double row of sutures, which is the plan adopted to-day. The first row of sutures is passed through the muscular tissue almost to the endometrium; these sutures are of kangaroo tendon, chromicized catgut, or silk. My own case was sewed with sterile silk and the result was thoroughly satisfactory. The second row of sutures approximate the peritoneum and bury the deeper row. This row may be of plain silk or catgut. Absorbable sutures are much to be preferred if they are sterile beyond doubt, and with the present plans there should be no reason why this should not be the case with animal sutures. Great care must be exercised in suturing the walls to get the tissues accurately approximated and to avoid any possibility of leakage when uterus contracts after its return to abdominal cavity.

9. *Suturing the Abdominal Wall.*—The suturing of the abdominal wall is in no wise different from that of the abdominal incision after any celiotomy. The method here depends entirely upon the tastes of the operator. The method employed by me was the through-and-through, using silkworm gut. It could have been closed in layers, using fine catgut for peritoneum, chromicized catgut or kangaroo tendon for muscles and fascia, and silkworm gut or catgut subcutaneously inserted for skin and superficial fascia. The latter yields, perhaps, the prettiest closure when no sepsis supervenes; but should by any chance any infection occur, then the condition is very much worse than had the former method been employed.

10. *Dressing and After-Care of Patient.*—The dressings em-

ployed, like the sutures, do not differ from those used in any abdominal section, and should be held securely in place by adhesive plaster strips, the best so far used being the zinc oxide, which adhere more thoroughly and do not irritate the skin as much as many other forms.

It is best to keep the patient on her back for the first twenty-four hours, and after this she may be carefully turned by her nurse on her side to relieve the almost unendurable discomfort. She must be kept more quiet than is the case in most operations, and not allowed to twist and turn in bed until good union has been secured in both incisions. She should be kept in bed from three and a half to four weeks, if there be no infection.

It is best for her not to undertake to nurse the baby until milk makes its appearance in the breasts, but the breasts should be carefully emptied by breast pump as early as mother can endure such efforts. The baby, when nursing commences, should be treated as when normal delivery has taken place.

Report of Case.—Patient of Dr. J. D. Cromer, inmate of Florence Crittenton Home, age 18. In childhood suffered from rachitis, which caused her to grow to womanhood greatly deformed; her legs were very short, not longer than my arms, and markedly curved; her body was longer in proportion than her legs. When she stood erect she measured about four feet. The conjugate diameter of her pelvis measured about $2\frac{1}{2}$ inches, the transverse diameter was also extremely short, and sacral promontory projected unusually forward, making the diameter very much less. Was seen by me on night of April 2, 1900; had been in labor all day with absolutely no engagement of head, which was presenting high up and unable to engage on account of smallness of pelvic diameters, although cervix had dilated to diameter of about three inches.

After making careful examination, Dr. Cromer and I decided that a Cesarean section was the best means of delivering her, and so placed the matter before the matron and patient, both of whom concurred in our opinion. After making preparations already described, we operated by aid of lamplight at the Home, delivering a large, well-developed boy who was not asphyxiated, and mother made an almost uneventful recovery. The mother was considerably shocked at the completion of the operation and Drs. Cromer and Barnett administered a quart of normal salt solution.

She remained at the Home for about three months, then re-

turned to her home carrying with her her healthy, well-developed boy.

The operation performed was that of Sänger, of Leipzig, with slight deviations described in preceding paragraphs.

The Lessons Learned from the Case.—The thickness of the uterine wall at full term which was observed in this case, it being about one-fourth inch in thickness. Again, the location of the placenta with reference to the uterus, which was found attached to the fundus uteri slightly more anteriorly than posteriorly.

The avoidance of serious hemorrhage even after the placental tissue was incised.

The wisdom of undertaking such an operation before serious injury to the soft parts had occurred or the possibilities of a ruptured uterus due to violent contraction of the organ in its efforts to expel the child through an impossible passage.

The promptness and completeness of the convalescence of the mother.

The absence of any asphyxia in the child, and its rapid growth and development while the mother was recuperating from the effects of so serious an operation.

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OVARIAN SYMPTOMS AND THEIR VALUE AS EVIDENCE OF OVARIAN PATHOLOGICAL CONDITIONS.

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If any apology is needed for a paper discussing some questions bearing on this subject, its justification will be found in the frequency with which women present themselves for treatment with the statement that they have been assured they have "inflammation of the ovaries," and they have been told their condition is irremediable except by a removal of the (supposed) offending organs.

This prevailing error as to the value which can be attached

to these so-called ovarian symptoms is more or less due to the general treatment of the subject in the books of reference usually at the hand of the general practitioner, wherein sufficient stress is not laid on the ease with which certain sympathetic symptoms arising from the general condition or uterine disease may be attributed to the ovaries. "So great is the sympathy existing between the uterus and these organs that uterine disorders excite ovarian pain very commonly, and give rise to many symptoms which are regarded as characteristic of this (ovarian) disease. . . . In the great majority of cases of uterine disease the patient will complain of pain, of dull, aching character, over one or both ovaries, and this will very likely be augmented by menstruation. But it is by no means to be concluded that this sympathetic pain, even if dependent, as it very often is, upon congestion, is due to chronic ovaritis. As well might it be believed that mammary pains excited in the same manner are due to mammitis."¹

Many years before the above was written, one of the pioneers of gynecology, and one to whom it is indebted no less than to any other for his careful research and clear deductions from observation, Charles West, taught the following views of this condition to his classes: "It is an affection [chronic ovaritis] supposed to be capable of lasting for many years without leading to any grave alteration of structure, though occasioning much functional disorder and producing much local suffering. Disturbances of menstruation of various kinds, sterility, and pain in the abdomen, more especially pain referred to one or other iliac region, are the symptoms commonly assigned to this chronic ovaritis; and, indeed, a very large proportion of the ailments that have been referred by some observers to inflammation of the cervix uteri and ulceration of its orifice have been attributed by others equally confidently to chronic inflammation of the ovary. My own impression is that a larger share has been assigned to chronic inflammation in the production of these symptoms than can be proved to be really due to it. In no class of ailments is pain so incorrect an index to the nature and importance of the morbid process which gives rise to it as in the disorders of the sexual system of women. On the one hand, diseases of the most formidable character sometimes run their course without the production of any suffering till they reach a stage utterly beyond remedy; while, on the other hand, pains of the severest kind

¹Thomas: Diseases of Women.

recur in some instances for weeks or months, or even for years, and yet neither during life nor after death can any adequate explanation be discovered of their occurrence or their persistence. It seems, indeed, as if the sorrow which women are particularly heirs to were not confined to the time of parturition, but as if the sentence extended in a measure to the performance of all the sexual functions. Pregnancy and menstruation, as well as child-bearing, are very generally times of suffering, and sexual intercourse itself is not infrequently attended or followed by the same kind of pain as has been referred to ovarian inflammation. Pain in the ovarian region is a very general attendant on prolapse of the womb, and it suffices but to introduce the sound into the cavity of the uterus in order to produce, and often with great intensity, pain referred to the situation of the ovaries.

“But while such symptoms are of frequent occurrence, are sometimes as causelessly persistent as in others they are causelessly evanescent, the researches of morbid-anatomists do not make us acquainted with such changes in the ovaries as can be supposed to occasion them. We often, indeed, find the evidence of circumscribed peritonitis about the ovaries, but we find it in cases where there have been no symptoms of an urgent character during life, often, indeed, where no symptom of any kind has existed. In many instances, too, where such appearances are discovered (signs of morbid processes in the Graafian follicles), it has been a matter of absolute certainty that during life all the sexual functions were performed with complete regularity and without any suffering. I could not acquiesce in the opinion that almost all the numerous ills of womanhood are due to inflammation of the neck of the womb. I can as little see in them the evidence of ovarian inflammation, and I believe that in nineteen cases out of twenty in which the ovarian regions are the seat of deep, dull, aching pain and appear tender and rather swollen, there is no actual ovarian disease whatever. I believe that in many cases the symptoms are purely neuralgic in their character, independent of any local lesion, and curable less by local treatment than by remedies addressed to the general state of the constitution. Pain is in itself the patient's ailment, and even varies greatly in different persons, and causelessly and within very short intervals in the same person, both in its character and in its intensity. It is ordinarily dull and aching, is accompanied by tenderness in the iliac region, in which situation a degree of fullness may often be detected, though careful percussion will dis-

cover that this fulness is due rather to the presence of flatus in the intestines than to the existence of any solid tumor. Though this pain seldom subsides completely, it is apt to be increased in paroxysms; walking, riding, exertion of any kind, and sometimes even remaining for a short time in the erect posture, considerably aggravating it. Menstruation always adds greatly to its severity, and sexual intercourse nearly invariably increases it, sometimes even induces a paroxysm of great violence. The extent of the pain is very variable. Always severest in the situation of one or other ovary (and, for some unexplained reason, generally in the situation of the left), it is sometimes limited to that spot, but in other cases extends more or less to all the pelvic viscera; difficult, frequent, and painful micturition are then always experienced, and defecation is likewise often attended or followed by severe suffering. While pressure in the iliac region is always painful, a vaginal examination sometimes causes little inconvenience. In those instances where the patient's sufferings were the severest, there were almost always unmistakable signs of the hysterical temperament, often very obvious symptoms of hysteria; while even when this was not the case the sudden aggravation or sudden cessation of the pain was sufficiently characteristic of its neuralgic character. Though frequently independent of actual disease, pain such as has been described is also, in a very large number of cases, a concomitant or sequela of various uterine ailments."¹

We have quoted thus fully from West's views to show that he was far in advance of his time, and that after his wise teachings the views of gynecologists passed through a sad intermediary period during which there was much bitter controversy as to the part played by ovarian pathological conditions in the production of the symptoms so graphically described by this most able man. Nearly fifty years later history repeats itself, and we find we hold the same views so long ago enunciated: "When the area of hyperesthesia in the inguinal region becomes painful, the suffering may be equally great. Owing to the anatomical relation which the inguinal region bears to the ovary, this symptom has been greatly misunderstood. As already stated, it has been misnamed ovarian tenderness and has been directly attributed to the ovary; and yet there can be no doubt with regard to the nature of this pain, for we must remember that it is quite fre-

¹ West: *Lectures on Diseases of Women*, 1856. Lea, Blanchard & Co., Philadelphia.

quently found in men; and also in women from whom the ovaries have been removed, removed sometimes in a vain attempt to relieve this pain. The pain is not ovarian; it should never have been called ovarian. Inguinal tenderness, groin pain, or, as I prefer, inguinodynia, are terms much simpler and in strict accordance with facts. The pain is, as a rule, confined to a limited area, and is found most frequently in the left side, and is very often associated with a similar though somewhat larger area of tenderness beneath or over the left mammary gland, and it need hardly be said, also, with other well-marked hysterical stigmata. As a rule, it is revealed by careful examination to be superficial and not deep. It is situated in the skin and the tissues of the abdominal wall, and not within the pelvis. I have frequently demonstrated this to be a fact. In some cases, just as in spinal tenderness, the pain radiates and becomes somewhat diffused, but it always radiates from a superficial centre in the abdominal walls; and just as there are cases of spinal tenderness in which the tenderness is at one time superficial and at others deep, so there are cases of inguinal tenderness in which the tenderness seems at times to be deep-seated, but even here the maximum point of pain can always be isolated and shown to exist in the abdominal tissues (of abdominal walls).''¹

These areas of hyperesthesia are especially found in the cutaneous distribution of the ilio-hypogastric and ilio-inguinal nerves, and it is not at all uncommon to find, in cases exhibiting these symptoms, the urine to be loaded with crystals of oxalate of lime, thus accounting, perhaps, for some of the pelvic symptoms, as well as for the vesical irritability, the pain in the back, groins, and down the anterior and inner aspects of the thighs.

The following case of Mrs. E. is of interest as showing the part taken by uterine disease in the production of symptoms referred to the ovary. She is an American, 29 years of age, fairly well nourished, but pale, dragged-looking, and decidedly anemic. Her appetite is poor, digestion sluggish, and her bowels move only by the use of medicine. She does all the housework in a small home, and cares for her two children, the last one born some twenty months since. She is cheerful in disposition, but comes complaining that she has pains in the ovaries, especially on the left side; the pains are much worse at the menstrual periods; there is a considerable flow of "whites," but the menses are not

¹F. X. Dercum: On the Relations of the Great Neuroses in Pelvic Dis. *Am. Gyn. and Obstet. Jour.*, August, 1898.

profuse. She has been assured she has "inflammation of the ovaries" and that they must be removed. Pressure on the spots pointed out as being painful does not cause pain; bimanual examination shows no tenderness on either side of the uterus, but the body of the organ is so on pressure; the intravaginal portion is normal to the touch, and, in fact, beyond the corporeal tenderness, the examination is negative.

According to her statement, the condition existed since her last labor, from which she had a poor "getting up," and had never felt herself since. The case was looked upon as being one of mild septic endometritis. The treatment was directed to the restoration of the general health; to this end the digestion was aided by pepsin and muriatic acid. As a blood reconstructive and general tonic, a pill of iron, quinia, arsenic, and strychnia was ordered. The uterine condition was treated only by the twice daily use of large quantities of hot water; these were to be taken on the back with the hips elevated. Many of the poor class of patients do not have a bath tub in their houses, or the bath room is not heated in winter, so that it is not practicable to advise the douche to be taken in the tub; but the patient is instructed to procure a big piece of common cheap oil-cloth, to spread it on the edge of the bed and drop the end into a bucket on the floor; two chairs are placed on either side of the bucket for the feet to rest on; the douche bag is not to be elevated more than 18 inches or 2 feet, and the water to flow slowly. As these people know but little as to the use of a thermometer, they are instructed to have the water just so hot that they can keep their hand fully immersed in it for one minute by the clock; this will insure its being no hotter than 115° F. Plenty of good red meat and all the fresh air she could find time to get were advised, and before getting into bed a good rubbing with warm salt water and a coarse dry towel was suggested. This woman faithfully carried out these instructions (a rather unusual result in this class, who, unless really seriously ill, are extremely neglectful of themselves). At the end of three months, during which time I had seen her perhaps three times, she reported herself as feeling quite well, and the last menstruation had not been painful. She had made flesh and had a glow of healthy blood in her cheeks. Such cases as these are the easily benefited ones, as they have a tangible morbid condition to correct.

The case of Mrs. McG. is one in which "pain was the patient's disease," and we can refer all the ovarian symptoms to the gen-

eral condition, as the correction of this by treatment directed solely to this end resulted in a disappearance of these symptoms. A woman 33 years of age, married for the second time. Six years ago she was delivered of a full-term still-born child. She has always been "very nervous." When first seen she was in bed, the room darkened, and a wetted handkerchief spread on her forehead. She "had dreadful neuralgic pains, her spine was tender, she could eat nothing and lived on tea." Her bowels moved perhaps once a week, and she slept but little at night. There did not seem to be any specialized neuralgia; the pain was frontal; none of the common *puncta dolorosa* seen in trifacial neuralgias were found. She had pain in both groins, most marked on the left side, and both groins were excessively sensitive to light pressure. The groin pains were much worse during the menses, which were scanty, though regular. No organic disease could be discovered anywhere in the thoracic or abdominal viscera. The indications for treatment in this case were easy to indicate, but difficult to carry out in the beginning. It was an illustration of *c'est le premier pas qui coûte*. However, by stopping the tea, giving milk at frequent intervals, then beef juice and later scraped rare beef and mutton, she was gotten up, then out into the air, and later to the seaside, where she remained several months with relatives and spent, by especial directions, all day out of doors. She gained twenty-seven pounds in flesh and made good red blood, losing at the same time all her ovarian pains and other painful sensations of peripheral nerves. The medication in her case consisted in the administration of citrate of iron and quinia and strychnia in sherry wine (the old "wine, steel, and bark" repeating itself in another form), and the officinal aloes pill to keep the chylipoietic viscera free. Every evening a half ounce of warm olive oil was massaged into the skin of the abdomen. Nothing very extraordinary in this, it may be said, but it was successful in restoring the woman to health and the enjoyment of life, and she still has her ovaries, which she had been assured were the *fons et origo* of all her trouble.

The following case is of interest from the complaint of ovarian symptoms which seemed to owe their origin to the existence of a "floating kidney" as a causative factor. The pain (of floating kidney) was often described as travelling back into the posterior lumbar region, and again up to the shoulder blade or down toward the ovary. Dr. McCosh¹ relates two cases to show how

¹N. Y. Med. Jour., Mar. 15, 1890, p. 281.

often the symptoms resemble those caused by disease of the uterus and its appendages. In one the ovaries and tubes had been removed, in another an ante flexion of the uterus had been remedied by divulsion and a stem pessary. Neither patient had been benefited by these operations. Each possessed a movable kidney. A complete cure was accomplished by a bandage in one case, and in the other by a nephrorrhaphy.¹ Mrs. A. E., widow, aged 26 years, a delicate little creature not five feet in height, and slender in proportion. She was married five years ago, and had a child, now nearly 4 years of age and healthy. Mrs. E. seemed to be in good spirits and was quite gay and cheerful during her consultation. "She had all kinds of diseases—dyspepsia, inflammation of the ovaries, and great pain in them at times, increased when her menses were on. She was costive and very nervous." The whiteness of her mucous membranes showed defective red blood, but beyond a moderately coated tongue there was no disease above the abdomen. On light pressure both ovarian (inguinal) regions were painful, the intestines were considerably flatulent. As the abdomen was slowly and carefully gone over with the tips of the fingers, a solid, freely movable lump was encountered in the right iliac region, almost filling the iliac fossa. This was easily outlined and was unmistakably a kidney from its shape, consistence, and the fact that squeezing it caused pain in the loin and groin and nausea. It could be manipulated back into its proper anatomical relations easily, but popped out again on the least movement of the patient. Various appliances were tried in this case to retain the organ in place, but were either not effective or gave rise to much more discomfort than existed without them. Her digestive troubles and constipation were greatly benefited by careful diet and remedies addressed to their correction, but no change was brought about in the ovarian symptoms; however, her health was good enough for her to follow her occupation, and she was advised not to contemplate operative procedures on the kidney unless it gave rise to serious symptoms dangerous to life, such as hydronephrosis from kinking of the ureter.

In hysteria "the ovarian region on one side is apt, but not certain, to be tender, either on the surface or upon deep pressure—probably too much has been made of this symptom."²

The following case of Mary McG. is recorded, not because of

¹Fenwick: *Epit. of Mod. Surg. Prog., Urin. Surg.*

²Weir Mitchell: *Diseases of the Nervous System.*

its illustrating any new or unfamiliar features, but from the fact of her having been urged to have her ovaries removed on account of pain and tenderness in the left groin. This girl came of a neurotic family. Her mother has attacks resembling melancholia. Two of her sisters suffered from chorea, and her brother is a paranoiac. M. is a good, industrious girl, 19 years of age, and has worked steadily for several years in a large department store, and until one year ago her health has been excellent. At this time she witnessed the crushing to death of a favorite old collie dog under a trolley ear. The shock of the sight brought on a severe attack of hysteria, which manifested itself first by continuous weeping; later she vomited (regurgitated) her food or anything she swallowed. Insomnia developed, and at times there were clonic contractions of the extremities. Her general health much deteriorated and she lost flesh and became anemic. At this time the ovarian pain developed and the left groin was tender both on deep and superficial pressure. The urine contained a great abundance of crystals of oxalate of lime, but there was no renal tenderness or frequent micturition. In about three months these symptoms passed off and she resumed her work at the store, remaining well until a relapse was brought on by the excitement and worry incident to the misconduct of her brother. The weeping, sick stomach, and insomnia first appeared, then the ovarian pain. On this occasion she was placed in a country "sanitarium" for treatment, from which she returned in six weeks quite restored to her normal condition. The peculiar "furtive look" and the ovarian pains and tenderness had also disappeared.

No examination of the genitalia was attempted in this case, for the reasons so well set forth in the following words: "It can be readily seen how doubly injurious, under such circumstances, incautious statements by a physician or a pelvic examination, even when the latter yields a negative result, may be. One can hardly judge of the enormous mental impression a first examination must make upon a young girl, especially if that girl is already hysterical, already neuropathic by heredity and predisposition. Not only is the great evil of the moral shock to be taken into account, but the fact that there is lodged in the patient's mind a more or less vague but fixed belief that she has some mysterious **local** disease, to which she only too willingly agrees to attribute her nervous manifestations. In consequence, she sooner or later insists upon a repetition of the examination or a continuance of

the local treatment once begun, and the morbid idea thus implanted becomes hopelessly rooted, never, perhaps, to become displaced."¹

On one occasion, chancing to be present in the consulting room of an old practitioner, he was overheard to say to a young girl, after she had glibly talked to him about her womb and ovaries, "You ought to be ashamed of yourself, and have no right to know you have such things," and, turning to the mother, he remarked, "You did not know at her age you had any such things, I warrant." The mother replied she was "very glad to say she did not." The young girl went off in a temper and no doubt went to consult some one else; but if years have brought her wisdom as well as gray hair, she no doubt is of the same opinion as her mother by now.

"Facts are eternal, and the premises from which conclusions must be drawn are not changed from what they have always been, but our appreciation of the signification of facts varies."²

In this day of attempts at exact physical diagnosis, there is but little excuse for the misinterpretation of symptoms such as have been enumerated. "Ovarian neuralgia is distinguished by the absence of all the signs characteristic of inflammation excepting pain. This pain itself has particular characteristics; it is shooting, it ascends along the lumbar regions and descends as low as the vagina, the urethra, to the symphysis pubis; it is not increased by pressure, often it seems diminished by sustained pressure; the ovary cannot be reached by the vagina, the organ not being lowered, as is usually the case in ovaritis—appearing, indeed, sometimes to be slightly higher than usual; it (pain) may be severe enough to cause nausea, vomiting, or hysterical phenomena; it comes on in paroxysms, not always coinciding with the catamenial periods; it is often accompanied by neuralgia in other parts, notably lumbo-abdominal. These neuralgias, particularly lumbo-abdominal, present painful points which are not found in ovaritis."³ This form of neuralgia is rather rare, and can be caused by pelvic diseases, affections of the lumbar portion of the vertebral column or the neighborhood of the lumbar plexus, or by exudations on the ilio-psoas muscles. The pains occur in paroxysms, are usually lancinating in character, and follow the course of the nerves toward the posterior portion of the trunk or the hypogastric region, or are manifested on pressure

¹Dercum: *Loc. cit.* ²Keyes: *Annals of Surgery*, March, 1892.

³Courty: *Trait. Prac. des Mal. de l'Utérus*.

over certain parts of these regions. The *puncta dolorosa* are: a lumbar point, a little to the outside of the spinous processes of the lumbar vertebræ; an iliac point, above the middle of the crest of the ilium, where the ilio-hypogastric nerve penetrates the transversalis muscle; a hypogastric point, above the inguinal canal, a little outside of the linea alba, where the ilio-hypogastric nerve traverses the aponeurosis of the external oblique muscle; an inguinal point; a scrotal or labial point, upon the scrotum or labium majus. The most usually found *puncta* are the spinal and inguinal.

Let us glance now at the classical symptoms of subacute or chronic ovaritis: "Pain sufficiently sharp in the abdomen, particularly in the iliac region (most often on the left); form of the belly normal, neither tumefaction nor tympanites; temperature normal; palpation does not provoke spontaneous pain, unless practised with force; pressure exerted on the middle of a line extending from the anterior superior iliac spine to the spine of the pubes provokes pain and gives a sensation under the fingers of resistance without distinct tumefaction; the vagina is moderately hot, without either dryness or leucorrhœa; in the vaginal cul-de-sac (most often to the left) the finger, when pushed very high, does not feel any arterial pulsation; in reascending a little in the rear, along the cervix, it reaches to a small tumor, the size of an almond, that is easily forced back, painful on the least contact; on steadying it by hypogastric palpation, we feel with the vaginal finger that it is smooth, roundish, oval, suspended alongside the uterus, separated from it by a groove; rectal touch confirms these evidences; combined with vaginal touch it allows of our feeling the tumor pop away during this combined pressure, like a stone out of a cherry; this pressure provokes severe pain also, causing the patient to cry out each time it is performed."¹

Let us suppose, then, we have decided, after our examination of the patient, that no pelvic disease exists, but pelvic symptoms in a case of hysteria or neurasthenia. "First, all idea of curing neurasthenia or hysteria by operations upon the pelvic organs must be absolutely abandoned. Happily the day has almost gone by when such operations are attempted. Healthy organs are no longer removed in the vain and grotesque attempt to relieve the symptoms of the neuroses. I have in more than one instance seen an otherwise curable case of hysteria converted into a hopeless

¹Courty: Loc. cit.

and incurable one by an injudicious operation. I recall one case in which a woman had both ovaries removed; subsequently, because her nymphæ were rather large and projected beyond the labia majora, she ascribed all of her troubles to them and at her solicitation they were amputated. Subsequently to this she ascribed all her troubles to her rectum, and finally the sphincter was cut. Some time after this she came under my care and almost immediately begged me to examine the rectum. It is needless to say that by this time her hysteria had degenerated into a true psychosis and she proved to be hopelessly incurable.”¹

We have endeavored in this paper to demonstrate the ease with which symptoms arising from conditions other than diseased ovaries may be confounded with the symptoms supposed to be given rise to by them.

That certain uterine pathological conditions may cause symptoms which are most marked by pain referred to the regions we have been taught (erroneously, perhaps) appertain especially to the demonstrations of ovarian disease.

That in certain women, when the general health has deteriorated, though showing no pathological condition beyond anemia of a mild grade, symptoms referable to the ovary are not infrequent.

That in women with a neuralgic dyscrasia, should the neuralgia develop in the lumbo-abdominal distribution, very confusing symptoms may arise.

In the peculiar condition sometimes seen in women passing large quantities of oxalate of lime crystals in their urine, the symptoms referable to renal, ureteral, and vesical irritation may simulate or lead to a diagnosis of ovarian disease.

In the two great neuroses, neurasthenia and hysteria, we frequently have symptoms simulating those given rise to by true pathological conditions.

The treatment indicated for reflex ovarian symptoms is the correction of the morbid conditions giving rise to them; and in the searching light of modern scientific medicine, with its numerous aids to a correct diagnosis, a better understanding of cause and effect in these cases, and hence a clearer and truer deduction from premises, we will find the indications for spaying narrowing themselves down to a quota that will make a very small figure when compared to those of a decade ago. The number of women who are now walking demonstrations of the fu-

¹Dercum: *Loc. cit.*

tility of this measure are a lesson from which much may be learned, and they can cry out against such treatment in the words of Talleyrand, "worse than a crime, it was a blunder."

Has the character of the practitioner of medicine changed since the great Cullen wrote, one hundred and fifty years ago, these harsh words: "The great horde of physicians are always servile imitators, who can neither perceive nor correct the faults of their system, and are always ready to growl at and even worry the ingenious person that would attempt it"?

Few of us are able and fewer still are willing to break up trains of thought to which we are inured.

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CESAREAN SECTION VERSUS CRANIOTOMY.¹

BY

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ARE we ever justified in killing an unborn child to save the life of the mother? This is a most serious question. From a legal standpoint and from a religious standpoint I do not believe we are. "Thou shalt not kill" is as much applicable to the unborn child *in utero* as to a child born. It is a living being, endowed with senses, undeveloped, it is true, but a being whose life may be of infinitely more value to the world than that of the mother. Who is to be the judge of the relative values of these lives?

One might as well reason that the murder of a child of 10 or 12 years of age would not be as criminal as that of an adult of 30. And when we consider that the maternal mortality of craniotomy is as great and probably greater than that of Cesarean section, I do not see how a physician can consider it, when the child is living.

Our mortality tables are taken from reported cases. Nearly every case of section is reported; but few cases of craniotomy reach publication, and then they are the statistics of the best obstetricians of the world, whose mortality must be far lower than that of the profession as a whole.

Consider the number of cases happening in the hands of the

¹Read by title at meeting of North Carolina State Medical Society, May, 1901.

general practitioner. I know of several cases in others' hands where the child had to be removed piecemeal, the mothers dying from sepsis. These cases have not and will not be reported.

Craniotomy, to my mind, is a most serious and dangerous operation. A man to perform it successfully must be a clean surgeon, must know pelvic anatomy, and must be skilful in his technique. Could not such a man do a section with success? Of course I admit there have been and will be many craniotomies done by men of inexperience, ignorant country practitioners it may be, saving the mothers, but with a horrible slaughter of the innocents, men who could not do a clean operation. But how many women have lost their lives in the same hands?

It is a difficult operation to crush a head and guide the sharpened bones through a small canal. We all know how difficult and serious is a high forceps operation in a healthy woman with a full-sized canal. I believe if I were the woman I would as soon trust to a section in unskilful hands. Then at the present day the number of abdominal surgeons does not make it difficult to get one, no matter where the case may be.

If men like Leopold and others have a general maternal mortality of 8 per cent, what must be the mortality of the average general practitioner? Embryotomy is properly called a "sacrificial operation" by Barnes.

Of course it is a very serious question to decide, for the friends and relatives, of course, always prefer to sacrifice the life of the child for that of the mother, but our calling is too sacred to be influenced by their wishes. We must remember that we have two lives at stake and should attempt to save both of them. This, as will be shown in the remarks upon the relative mortalities, can be more surely done by the Cesarean section.

It is said that not only Cæsar, but Scipio Manlius, Africanus, and other noted celebrities of those days were removed through the abdomen. Their lives were probably of more value to the world than those of their mothers.

But I do not argue from that standpoint. I hold that the section is the least dangerous of the two operations to the mother, and giving an infinitely greater number of living children.

Relative Mortality.—The maternal mortality in craniotomy, from the combined reports of such men as Leopold, Zweifel, Fehling, statistics of Potocki and others, is 8.1 per cent, the mortality of the children, of course, being 100 per cent. A large number of these operations were done, it is true, before the days of

asepsis, but they were done by men skilled in the art of obstetrics. I do not doubt but that if all the cases could be gathered the mortality would reach 25 per cent.

Pinard in 81 craniotomies lost 11.5 per cent of the mothers.

Even so conservative an operation as symphyseotomy, in 240 cases reported since 1886, has given a maternal mortality of 12.85 per cent and 20.2 per cent of the children. Pinard, in a recent article, gives about the same mortality rates. The mortality of Cesarean section is gradually being reduced. Zweifel had 50 cases without a death, while Reynolds, of Boston, had 14 consecutive cases and Sinclair 10, both without a single death.

The statistics of Sinclair, Chrobak, Braun, Leopold, Zweifel, Olshausen, Schauta, Bar, Charles, Reynolds, Everkes, and Boyd give 269 cases, with a mortality of 5.1 per cent of the mothers and 4.7 per cent of the children. Excluding the cases who were operated upon after infection and who were manifestly in a fatal condition, the mortality is only 3.8 per cent, hardly greater than that of an uncomplicated ovariectomy. The rapidity of convalescence after the section would make it preferable to symphyseotomy, where it is months before the patient is able to walk.

I believe that when there has been a prolonged labor, or where there is a probable infection or traumatism, hysterectomy, either complete or partial, preferably done by dropping the stump and closing the peritoneum over it and draining through the vagina, should be the operation of election. I feel sure that one of my cases would have lived had I done this instead of closing the abdomen. This case had been in labor four days and was undoubtedly infected before the operation, as the postmortem showed.

One point in the technique I suggest is the discarding of the rubber tube, still advised by most of the text books to control hemorrhage. It is in the way, and does not control the hemorrhage as well as the hands of an assistant grasping the uterus as low down as possible, the fingers being behind and the thumbs in front of the uterus, the assistant facing the patient's head and standing either at her feet or on the side opposite the operator. In this position he is out of the way, can keep the uterus well up against the abdominal walls, preventing leakage into the abdominal cavity of fluids and blood from the uterus, and can manipulate the uterus with the greatest ease. It is surprising how little hemorrhage there is in this operation, and how quickly it may be performed.

TREATMENT OF ABORTION.¹

BY

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THE most frequent disturbance of pregnancy is one of the most interesting, and an event occurring once in every ten pregnancies demands close attention. The pronounced and often long-continued hemorrhages and the not infrequent infection of themselves produce serious disturbances of health, while the numerous chronic diseases which result from imperfect involution lend to abortion a peculiar importance. The limitation of the term abortion to the period preceding fetal viability is very convenient, and the treatment up to the sixteenth week can be satisfactorily standardized, as there is a happy coincidence in the arbitrary and pathological boundaries. Primarily every woman subject to conception must be regarded as aborting when hemorrhage occurs after one period is passed.

The treatment of abortion is best divided into general prophylaxis and the measures indicated respectively in threatened, inevitable, and incomplete abortion.

Prophylaxis is highly important and is addressed to the cause of habitual abortion, which may be syphilis, chlorosis, incipient tuberculosis, chronic inflammatory conditions of the genitalia, or malpositions of the uterus. Appropriate treatment of these diseases before pregnancy, with regulation of the bodily functions during pregnancy, will accomplish much, while the administration of the sedatives (opium, bromide, chloral, etc.), with mental and bodily rest at the critical period, will frequently enable the woman to go to term.

The consequences of an abortion sometimes predispose to another. Thus, subinvolution is common after abortion, for the contractions of the uterus are less powerful, the muscular tissue less perfectly developed and less responsive to irritation. The customary irritation is also diminished, since the stimulation

¹Read before Illinois State Medical Society, at Peoria, Ill., May 22, 1901.

arising from lactation and nursing is absent. The patient usually rises too soon, and the consequent pelvic congestion prevents proper uterine involution. Anemia may have a like result. As a prophylactic measure the uterus should be stimulated to contract by means of ergot for a reasonable period after an abortion, and hot douches may be added, provided they can be given properly. The patient should remain in bed much longer than after a normal labor. This is of extreme importance and should be enforced until the danger of subinvolution is passed.

The occurrence of abortion is marked by hemorrhage of some degree, accompanied by heaviness and abnormal sensations in the lower abdomen which are not necessarily painful. The blood is usually bright red, persistent, and free from clots. The os externum is found only partially opened, the cervix closed or only slightly dilated: contractions are rarely present and typical pains are absent. This condition is recognized as "threatened abortion."

If the hemorrhage is due to disease which will be intensified by pregnancy or cause danger to the mother (tuberculosis or valvular heart disease), or the woman is anemic from repeated hemorrhages, the abortion should be accelerated if the fetus is dead. In making a diagnosis of fetal death some reliance must be placed upon the history of a previously expelled dead ovum and the presence of an intermittent discharge of fresh or brownish blood. Add to this the physiological signs of a hard, round uterus which, on repeated examination, does not show signs of growth, does not correspond in size to the period of pregnancy, exhibits loss of tension, and the diagnosis is reasonably certain.

If the cause of the abortion is not clear and the mother's life is not endangered, the ovum should be preserved, if possible. Besides the use of sedatives, the woman should remain in bed for two or three days after the cessation of hemorrhage and return to it if the symptoms reappear. When the cervix is closed and hemorrhage is so severe as to threaten the life of the mother, the indications are to stop the bleeding and empty the uterus. The tampon, uterine if possible, vaginal always, will accomplish the first and usually the second. Tightly applied, it may be left *in situ* safely for from twelve to twenty hours, and can be renewed if hemorrhage persists. Frequently the contents of the uterus will be found on the tampon when it is removed. A careful examination of the expelled particles must be made to determine whether the ovum is complete. Occasionally the egg is thrown

off with the membranes intact, but usually only a mass of decidua mixed with membranes can be found.

Where the abortion is inevitable, the os is dilated, the cervix patulous, and the ovum near the cervix. Hemorrhage is persistent, increasing in quantity, and clotted. The unruptured sac, detached from the uterine wall, can often be pulled into the vagina with the finger; while even if the sac ruptures, the ovular remnants usually can be easily removed because of their low situation in the cervical canal. The entire egg, when released from its uterine attachments, is sometimes expelled by compressing the uterus between an external hand and two fingers in the anterior or posterior fornix (Hönig). When the egg lies wholly or largely in the uterine cavity it is much more difficult to remove, but under narcosis the finger can be carried through the canal and the mucous membrane efficiently cleared. Here also, in the absence of contraindications, the tampon can be employed, and after twelve or eighteen hours the uterine contents will be evacuated or the os be found sufficiently patulous for digital or instrumental curettement of the cavity.

In pregnancy up to the third month it is often doubtful whether the egg has escaped, but in all cases where the phenomena of abortion have not lasted a long time the cervical walls are soft, the os internum patulous for the finger, and exploration will give the desired information.

Early in pregnancy the decidua is most important in an abortion, the membranes are less so, and the fetus is quite negligible; but with formation of the placenta the latter assumes the greatest importance, until in the latter half of pregnancy the fetus supplants it.

When the cervix is partly open and hemorrhage present the abortion is incomplete; and if the bleeding is severe, prompt evacuation of the uterus is imperative. Anesthesia is usually required and chloroform is to be preferred. The entire hand can be introduced into the vagina, if necessary, while the external hand grasps the fundus uteri and crowds it down over the index and, if possible, the middle finger of the internal hand. The ovum is separated from the uterine wall with the fingers, the uterine cavity carefully examined and then washed out with a two per cent solution of lysol. The digital operation is more satisfactory and in a majority of the cases as easily performed as the instrumental.

When the rigidity of the abdominal walls does not permit

the uterus to be forced down over the internal finger by the outside hand, when the fundus lies too high to be successfully reached by the finger, or when the abortion is too early to permit sufficient dilatation for the introduction of the finger, a skilful operator will obtain equally satisfactory results by forcibly dilating the canal with the Hegar or Goodell dilators. The danger of lacerating the cervix with these instruments is very slight. The cervix is pulled down and steadied by means of a curved four-toothed tenaculum forceps during the preliminary dilatation and also while using the curette. The sharp curette is desirable in early abortions. It is very important in these cases to examine the uterine cavity with the finger after the instrumental curettement, to determine the thoroughness of the operation. After the sixth month the sharp curette becomes dangerous, for the walls of the uterus are frequently so softened that the curette may scrape through to the peritoneum or be pushed through the fundus.

The normal uterus and vagina will drain very satisfactorily if let alone; hence, unless there is severe hemorrhage, it is better after curettement to leave both the uterus and vagina free from gauze packing. The uterus is free to contract, the serous and other discharges flow away unhampered, and the chances of infection are greatly diminished.

The use of ergot to hasten the abortion by stimulating the contractions is very generally advised, but should be unhesitatingly condemned. The tetanic contractions induced by ergot are not favorable to the satisfactory emptying of the uterine cavity. The tampon accomplishes the same result more efficiently and certainly and is safe, while ergot is unreliable and dangerous. The use of ergot should be reserved for cases where hemorrhages threaten after the complete evacuation of the uterus, and cases of subinvolution.

The tampon properly applied is an invaluable aid in abortions. It stimulates uterine contraction, dilates the os, and stops hemorrhage both mechanically and dynamically, besides maintaining a condition of surgical cleanliness. The clot which forms on top of the tampon mechanically causes the separation of the ovum in a very natural and satisfactory way. The principal contraindication to the use of the tampon is the presence of sepsis. After the sixth month, also, the uterus is so large that it can contain a large amount of blood, and here the vaginal tampon should only be employed in association with uterine packing. The tampon is

applied with the patient on the table or in the cross-bed position. The pubic hair is clipped. The external genitals are scrubbed with green soap and washed with lysol solution two per cent, followed by 1:4000 bichloride. Patient catheterized. Vagina washed with green soap and hot water, followed by lysol douche two per cent. The hands and instruments prepared as for a laparotomy. The portio vaginalis should be entirely surrounded by gauze (or cotton pledgets) introduced by dressing forceps or fingers under the control of the sight, while the perineum is depressed with a Sims speculum. Then on the broad base made by the pledgets and the os the vagina is gradually filled to the vulva and a binder applied. Unless the vagina is packed tightly enough the tampon fails in its mission, and if too tight it gives unnecessary discomfort to the woman. The temperature is taken every few hours, and a rise of 1.5° F. indicates the removal of the tampon. The necessity for asepsis in all cases must be reiterated: the fact that pregnancy and labor are physiological processes does not free the woman from danger of infection.

The introduction of substances from without constitutes a more serious menace to the woman than any evil she may develop unaided, hence it is desirable to avoid unnecessary interference of every kind, including the douche. The time for the douche is before and after curettement, to cleanse the canal and wash out any loose detritus from the uterus and vagina, and to provide for the elimination of germs introduced from without at the time of the operation; but here its function ends. It is unnecessary, useless, and injurious, both in normal labor and abortion, as the experiments of Krönig (confirmed by Menge, Döderlein, and Williams) have shown.

The germs in the vagina are normally in a state of attenuated virulence, being rendered so by the peculiar acid secretion of the vaginal bacillus. Wadsworth has shown that pathogenic germs only exceptionally persist in the vagina throughout pregnancy and labor, and where present in severe cases they persisted after repeated douching with 1:5000 bichloride. Krönig has also shown that the vagina requires more time to eliminate pathogenic organisms after douching than without. In normal cases the vaginal secretion renders the organisms inert in twenty hours; after douching thirty-six to forty-eight hours are required. The douche simply removes the protective secretion and gives the organisms a better chance to thrive. Furthermore, the attempt to sterilize the vagina by douching alone is no more reason-

able than to attempt to sterilize the hands by allowing a few quarts of hot antiseptic solution to run over them.

In cases of abortion where sepsis is already present, as shown by the elevation of temperature and rapid pulse, or by a rapid pulse while the temperature remains near the normal, active interference is definitely and urgently indicated. The uterus should be curetted at once and the cavity thoroughly washed out with a hot one per cent lysol solution (bichloride to be avoided). When the uterus is thoroughly cleaned and irrigated it seems best to leave it entirely alone and assist the patient to antagonize the toxins which the uterus takes up. If treated at once these cases usually terminate happily, but when treated expectantly the results are not so satisfactory. It is well known that the fatalities from abortion are mostly among the cases criminally produced.

Where the patient is profoundly anemic from sudden or long-continued hemorrhage, the urgent symptoms can be temporarily relieved by the introduction of from one to five pints of normal salt solution by means of an aspirating needle and the douche bag, both being carefully sterilized as well as the solution. The needle should be introduced under (not into) the mammary gland of one or both sides.

Under no circumstances can the use of tents be justified. They are unnecessary, imperfect, and incapable of complete sterilization. The introduction of styptics into the uterine cavity must be expressly condemned as unnecessary, always harmful, and sometimes dangerous. An exception is possible in the case of iodine, as the least objectionable.

Every abortion must be regarded as a severe surgical case and treated as such. The practitioner should impress upon his clientage that abortion is a very serious matter and requires the best judgment and skill obtainable in its management, for where one woman passes through these perils successfully many are seriously affected, either directly or remotely.

TRANSACTIONS OF THE AMERICAN
GYNECOLOGICAL SOCIETY.¹

DISCUSSION ON THE PAPERS OF DRS. HARRIS AND GEHRUNG.

DR. MATTHEW D. MANN, of Buffalo, believed that the term dysmenorrhea should be limited in its use strictly to the menstrual process. The menstrual process was not something which went on in the tubes and ovaries, or in the pelvic peritoneum, but in the uterus, and the pain, therefore, of dysmenorrhea meant trouble within the uterus. This trouble was found, ordinarily, to be either an endometritis, a condition of hyperplasia, or a thickening around the internal os—conditions which caused uterine contractions the moment blood was effused from the surface of the uterus, acting as a foreign body and causing contractions as in the early stages of abortion. Undoubtedly women had a great deal of pain at the menstrual period from other causes, but he would not call it dysmenorrhea. Disease of the ovary or tube, salpingitis, pelvic peritonitis, various abnormal conditions under the increased blood pressure which came at the time of menstruation, would cause severe pain. It would come on four or five days before the menstrual process, and it could not be due to the menstrual process. Pain that came on four days before menstruation could not be considered true dysmenorrhea. It was a pain from some abnormal condition in some of the other organs. A careful distinction should be made between pain due to an inflammation or disease of other organs, and that which was due to disease of the interior of the uterus, which was a true dysmenorrhea.

DR. GEORGE M. EDEBOHLS, of New York.—There is no difficulty in understanding that primary dysmenorrhea may be simply ovarian; it might have nothing to do with the tubes. The uterus and tubes were developed from one set of fetal structures, while the ovary was developed by itself. Its development did not necessarily go hand in hand with the development of the tubes and uterus. It was quite possible to have an ovary develop without any uterus or tubes. He mentioned one such case in which he did an abdominal section. There was absence of uterus and tubes, but the ovaries were fully developed. The patient had dysmenorrhea every month.

In another class of cases the uterus and tubes might be perfectly developed, while the ovaries would be in a condition of arrested development. In those cases dysmenorrhea might occur at each menstrual period, or it would be characterized by the

¹Continued from page 87, July JOURNAL.

following: It would appear before the menstrual flow, it would continue for five or six days before menstruation began, and at the beginning of menstruation the dysmenorrhea would stop.

If a patient had had dysmenorrhea very early in girlhood, and it could be made out that it was ovarian in character, that it came before menstruation showed itself, he thought it would be rash to attempt to do surgical work upon the appendages in that case, that is, removal of the ovaries, leaving a part or whole of the ovaries, because the patient would simply have the dysmenorrhea persisting after operation. In a case of tubal or ovarian disease, or both, if complete castration was performed, no part of the ovary should be left if the woman had had the ovarian form of dysmenorrhea prior to acquiring the present pathological condition for which she was operated.

DR. A. PALMER DUDLEY, of New York.—What is dysmenorrhea? Painful menstruation. What produced pain? Was it the blood supply or the uterine structures? He did not think so. It was the nerve supply of the structures. Anything in the pelvis of a woman which pressed on these nerves would produce pain. If a woman had pelvic congestion she was likely to have dysmenorrhea. It was well known that in the animal kingdom, days before the female would allow approach, she was in a state of preparation for it. And so the woman's pelvis was in a state of preparation for menstruation. Suppose the circulation from any cause was obstructed—and he was speaking now of the return circulation from the pelvic structures—dysmenorrhea of one form or another was bound to occur. In considering this subject gynecologists should go back to first principles and look for anything that obstructed pelvic circulation, either in the girl or woman. If it was acquired there was reason for it. If the blood vessels were pressed upon the right or left side, there was reason for it. Supposing the pain was due to tight lacing, surely the physician would not introduce a sound into the uterus to dilate it for the relief of dysmenorrhea, and how nonsensical it would be to remove an ovary or a portion of an ovary for dysmenorrhea when the other conditions that produced the pain would still produce it! He would object to removing a portion of an ovary or to puncturing a cyst for the relief of dysmenorrhea. What had produced the cystic degeneration or the ovarian disease? The cause of the dysmenorrhea should be inquired into, and if it was necessary, after ascertaining the cause, to treat the uterus, to curette it, it should be done. If it was necessary to open the abdomen and treat the tubes and ovaries, it should be done. But unless the physician did all, that is, relieving any condition that would obstruct return circulation at the approach of menstruation, the woman or girl would continue to have dysmenorrhea.

DR. LAPHORN SMITH, of Montreal, had reached the point in his own mind that when a woman told him that she had to earn her own living; that she could not hold a situation because every month she had to go to bed and stay there for two or three days

on account of pain; and that for several days she was not free from intense pain and had not been since she began to menstruate, he had no hesitation whatever in removing both ovaries and tubes in that case, and his results had been satisfactory.

On the contrary, some four years ago he began the so-called conservative method of treating tubes and ovaries, puncturing cysts, etc., and those cases to-day reproached him. Were gynecologists justified in removing the ovaries and tubes in such cases? As a rule, if the case was treated conservatively for a time, putting the patient in the best possible condition, and it was found at the end of a year that she was no better, what was the use of letting her drag out a miserable existence when she could be cured at once by radical measures? He had operated on such a case a month ago. A day or two afterward the patient said that she had never felt so well before. In this case there was pressure on the ovarian nerve, the relief of which effected a cure.

DR. HOWARD A. KELLY, of Baltimore, was glad the last speaker had reported the case upon which he operated a few days ago. Had he reported it a year or two later, the story would be different. There was no class of cases so unsatisfactory as the dysmenorrheas. He had learned from an extensive experience never to do a radical operation for dysmenorrhea, such as taking out the tubes and ovaries, in the absence of gross or macroscopical disease. Patients upon whom he had operated years ago, and he recalled a number of them, had not been benefited, and he had concluded that they were worse after the operations than they were before them. He had tried the extracts in some cases with excellent results. In others much relief had been afforded by dilatation.

DR. WILLIAM H. WATHEN, of Louisville.—Dysmenorrhea is a painful condition of menstruation that might result from diseased ovaries, tubes, uterus, or the pelvic structures. In treating dysmenorrhea, it should be regarded in the same light as any other diseased condition and its cause removed. He did not believe that an operation upon the ovaries, unless they were markedly diseased, was ever justifiable for dysmenorrhea; and if the ovaries were removed, certainly the uterus should likewise be taken out, because the results would be better. He found that the majority of cases of dysmenorrhea were greatly relieved by curetting the uterus only. He seldom dilated the uterus.

DR. J. MONTGOMERY BALDY, of Philadelphia.—Cases of dysmenorrhea should be divided into two classes, namely, those in which there was pain at and during the menstrual period, and those who suffered intensely during the menstrual period and who were wrecks thereafter. It took the latter class of cases from ten days to two weeks to recover after each menstruation. These women only had a few days of good health before the next menstrual epoch was ushered in. These constituted a separate and distinct class. Many of them could be relieved by a radical operation on the appendages. Oftentimes we could not lose sight

of the fact that many women suffered from such a large amount of hemorrhage that it left them very anemic, and with a combination of the pain and hemorrhage they were practically physical wrecks. He had in a certain number of such cases removed completely the whole pelvic organs, with a view to bringing on the menopause and affording relief, and his results had been satisfactory. He recalled a number of such cases.

DR. SETH C. GORDON, of Portland, Maine, agreed with Dr. Baldy in the distinction he had made. There was a class of cases who were simply menstrual sufferers alone. When they were through menstruating they were ready to go to work. He would not resort to a surgical operation in those cases. He would not do anything surgically unless the disease was due entirely to the uterus, either in the form of a displacement or congestion of its mucous membrane, with perhaps the existence of a fungous growth. In these cases he would dilate and curette once. Members of the profession were apt to dilate and curette too frequently in cases of dysmenorrhea. This was wrong. It was a great mistake to encourage any woman to believe that if she was not relieved the first time by dilating the uterus and curetting it, she was going to be relieved by repeating these operations. There was a class of cases dependent upon disease which might not be macroscopical, which required the complete removal of everything connected with menstruation. The only way to treat such cases was to remove completely everything within the pelvis. He had no sympathy with those who would restrict their operations to the removal of the ovaries and tubes, leaving the uterus.

DR. FERNAND HENROTIN, of Chicago.—If a woman had intense dysmenorrhea and suffered between the months until she was ready to menstruate the next time; if she was troubled this way year in and year out, and insisted that she had to earn her own living, something should be done to make her comfortable, even to the extent of removing her organs. He did not think any reasonable man would operate radically for dysmenorrhea until the woman had arrived at mature years, and then the physician should be careful about rushing in to do radical work. The fact of the matter was that there were instances of women who had to earn their own living, and they could not do it while they had this unfortunate trouble. These cases were rare. Personally, he could not recall having had more than five of them. If a sufficient length of time had elapsed after all other measures had been tried, irrespective of the views of the physician, if the woman had to make her living, she should be given a chance, and she had a right to say whether or not she wished to undergo an operation.

DR. R. STANSBURY SUTTON, of Pittsburg.—There was a form of dysmenorrhea occurring in young women who, up to their marriage, never had had any trouble with their menstrual function. They all told about the same story, namely, that a couple

of months after marriage they began to have leucorrhœa, urethral irritation, and dysmenorrhœa. When a woman presented herself to him with that picture, he made it a rule to seek for the gonococcus. If he could not find gonococci in the urine of such women, he examined the urine of the husbands. Dysmenorrhœa in young married women could be traced in many instances to gonorrhœic husbands. He recalled seven cases in which there was specific infection and for which he removed the ovaries and tubes. Of these seven cases, in six he subsequently removed the uterus *per vaginam*. These operations were done prior to 1894. In one case he removed a little fibroid, as large as a walnut, from the uterine wall. Five cases were absolutely cured by the removal of the uterus, while they remained uncured by the removal of the appendages.

DR. GEORGE J. ENGELMANN, of Boston, directed attention toward that class of cases which was dependent upon nerve influence, and gynecologically dysmenorrhœas should be classified into those that were dependent upon distinct lesions, and those that were either dependent upon nerve influence altogether or upon lesions such as were not distinctly made out. If the dysmenorrhœa was dependent upon a distinct lesion, it was clearly the duty of the gynecologist to remove or correct the offending condition. He had seen dysmenorrhœa apparently exist independently of any lesion, and it was purely a nervous dysmenorrhœa. He had seen good results follow in such cases from two apparently directly opposite procedures. One, a moderate dilatation of the uterus in connection with the galvanic current, using the dilator as the electrode. This method gave relief, not only for the coming period, but sometimes for several months. The other method consisted of a bilateral incision, which prevented the uterine pain and controlled hemorrhage, for what reason he did not know.

DR. ARTHUR W. JOHNSTONE, of Cincinnati, defined menstruation as nothing but a shedding. It was simply getting rid of some material whose function was fulfilled, and for which the economy had no longer any use. It was nothing more nor less than the process of the moult as seen in birds. When a bird had done with its feathers it got rid of them. The old feathers dropped off and new ones developed at a rapid rate. The shedding of the leaves of a tree and the manufacture of its young leaves and buds corresponded to the menstrual week.

Pain meant that there was something wrong in the pelvis. The time when the pain came, with reference to the endometrium, as regards the flow of blood, gave him a fair idea of where to search for the lesion. If pain began about the fourth or fifth day before the flow commenced, he suspected the ovaries and tubes or peritoneum. Where the pain preceded the flow, he looked to the appendages, etc., for the seat of the trouble.

Intermenstrual pain was another thing which for a long time he did not understand, until he was driven to operate on some

cases by the severe complaints of patients. He narrated the case of a girl who had been made a physical wreck by intermenstrual pain. At a certain definite time after the cessation of menstruation, two weeks later, she would be put to bed in the most agonizing pain. After a long story of euretting and getting rid of endometritis, he entered the shaggiest pelvis he had ever seen in his life. There were numerous small adhesions that ran at almost every conceivable angle. There was no active peritonitis. When menstruation was on it was the best part of her month; when it ceased, at the end of two weeks, she was nearly dead. The removal of the ovaries in this case was followed by recovery.

DR. CHAUNCEY D. PALMER, of Cincinnati, had seen many cases of dysmenorrhea in which there was no lesion in any structure that he could detect by a careful examination of the uterus and its appendages. These cases sometimes started at the beginning of menstruation and continued indefinitely. The conservative point he desired to speak of in reference to those cases was that it was a local expression of a general neurotic state. Neurotic dysmenorrhea was more common in American women than in any others. It did not occur in lower life, in women who had been subjected to a good deal of exercise. It occurred in anemie, neurasthenic, and hysterical girls who had no disease, except that they were below par in general health. One of the best ways to control many of these cases was to give them proper general treatment. He would place these patients on proper hygienic treatment and the administration of general tonics, as iron, quinine, strychnia, arsenic, cinchifuga, also electricity. He had relieved many such cases by the application of the galvanic current. It was a serious thing to put an electrode inside the uterus of any woman. It should be done gently, once a week, and whether it was to be repeated or not would depend upon the results obtained by previous treatments. The electrode, the positive pole, was inserted and a current of from ten to fifteen milliamperes was allowed to flow once a week, to be repeated if necessary.

DR. HARRIS, in rebuttal, stated that before undertaking any operation for the relief of dysmenorrhea the menstrual history of the individual should be fully considered. He had spoken about excising both tubes and of having left one or both ovaries. There were a good many cases of tubal or stump infection. A number of cases had been operated on too conservatively; the operators had left too much of the tube, consequently there was reinfection and not a cure of the extrauterine suppuration. A cure of dysmenorrhea could not be expected if operations upon suppurating tubes were incomplete.

DR. GEHRUNG, in closing the debate on his part, directed attention to the great damage that was done by profuse menstruation; and by the word profuse he meant when the amount exceeded the small physiological quantity of blood. Anything lost beyond that meant naturally, by its frequent repetition, the low-

ering of vitality of the patient. He had seen it bring many a patient to the verge of insanity. They had been declared dements and melancholiacs on account of nothing except the great loss of blood that took place at the monthly periods. The salient point in his paper was to bring this matter before the attention of physicians, not to encourage women to bleed more, but to do everything possible to save the vital fluid for future use.

CANCER OF THE UTERINE FUNDUS.

A paper with this title was read by DR. J. M. BALDY, of Philadelphia.

Carcinoma in any part of the body is so well known for its virulence that there can be no surprise at the results of this disease recently reported from so many sources where the uterus has been the organ attacked. It must be admitted that carcinomata of the same variety are intrinsically much the same as far as the disease itself is concerned, but the location of the disease renders the practical aspect of the case widely different; and, of all portions of the body in which it is safest for cancer to occur, if the word safe can be used in this connection at all, the fundus uteri is that portion. It is with the object of calling the attention of the profession to, and emphasizing as emphatically as possible, the wide practical difference between cancer of the cervix and cancer of the fundus, that this paper is presented. It has been said that practically all cases of cancer of the cervix eventually die of the disease, that practically all cancers of the fundus remain well if operated upon. This statement is more generally true than one would suppose at first glance. It has been my own and the experience of other surgeons. Less than 5 per cent of cases of cancer of the cervix are cured, no matter what line of treatment is followed. Twenty-four cases of cancer of the fundus have passed through my hands, a fairly large experience for one man. Of these, three were either too far advanced for operation or refused operative treatment. On the remaining 21 cases hysterectomy was performed by the vaginal method, the abdominal method, or the combined vagino-abdominal method. Two of the 21 cases died of the operation. Of the 19 remaining cases, all are alive and well to-day, with two exceptions. One of these died of pneumonia seven years after operation. It is strongly suspected from the reports that the other one has recurrence. Making all allowances for mistakes and the general unreliability of statistics, the fact stands out strongly that about 75 per cent of these cases are well and free from signs of cancer, as against 5 per cent or less of cancer of the cervix.

DR. CYRUS A. KIRKLEY, of Toledo, Ohio, read a paper on

THE STATUS OF HYSTERECTOMY FOR UTERINE CANCER.

The paper was a plea for conservatism in the surgical treatment of uterine cancer, and contrasted its pathology and treatment of half a century ago with that of the present. While we

have a revised nomenclature as to the varieties of uterine cancer, actual knowledge of the disease has not materially advanced. Old truths may have been made a little clearer as to its pathology, but its etiology is still unknown, and, notwithstanding the advantages of asepsis and perfect operative technique, its treatment is still unsatisfactory.

Due credit was given the advocates of vaginal hysterectomy for their skill and for whatever pathological fascination made it too general, and proper indications for it were too often disregarded and as often misunderstood. Instances were given pointing out this truth. With these discordant views as to the propriety of so serious an operation, the primary mortality of which is at least 10 per cent, we might well hesitate in its adoption.

The operation should be done at the early stage, when microscopic examination is necessary for a correct diagnosis. Most cases have passed the limits of radical operation when they apply to the surgeon.

The paper took the view that adenocarcinoma of the body of the uterus in its early stage, while yet localized, is the only form of cancer clearly indicating vaginal hysterectomy. Hysterectomy gave the best results in this variety of cancer. Dr. Cullen's and other tables were quoted showing average primary and remote results, but little was found in them to recommend vaginal hysterectomy as a general rule of practice.

The paper then discussed the Rumpf-Ries-Clark operation, in which Dr. Pryor had reported in a total of 98 cases by different operators a primary mortality of 11.2 per cent. When the disease has extended so far as to require it, little could be expected from any radical operation, because in most cases it was impossible to know whether all the diseased glands and infiltrated tissue had been removed. From the paper's viewpoint, the only indication for abdominal hysterectomy for cancer is when the disease is strictly confined to the cervix and body, or to the body alone.

Electro-cauterization, as practised by Dr. Byrne, was given the preference over all the other methods of operating. It had not received the recognition it deserves. Dr. Byrne's skill in its application could only be acquired as in other operations. Freedom from danger and longer period of exemption were its strongest recommendations. An old table published by Dr. Byrne in 1889 was referred to, so that in comparison vaginal hysterectomy might have the advantage. In a total of 367 cases there was not a single death from the operation. The position held by our fathers fifty years ago, that hysterectomy for cancer has its narrow limitations, that it should be done early, if at all, and that only temporary relief can be hoped for, is just as true to-day.

The parasitic theory of cancer might yet evolve something. One or two investigators were already agreed that they have found the parasite.

The antitoxin of diphtheria was unknown a few years ago. Ovarian pregnancy, once generally considered impossible, has now been quite conclusively proved, and may we not as reasonably hope for a cure for cancer based upon the parasitic theory of its origin? Personally, the author was almost convinced of its truth, and had confidence that bacteriology would at least point out the rational treatment for this terrible and incurable malady.

The discussion on these papers was opened by Dr. ELY VAN DE WAREK, of Syracuse, N. Y.—The only bright spot about hysterectomy for cancer of the cervix was the remarkably small death rate following the operation. Whether the operation was done early or late, it was quite generally noticed that the mortality was very small. There were some men who claimed for total extirpation of the uterus the happiest results, a large per cent of complete cures, and a still larger per cent of late recurrences. Other men had looked upon the matter with utter hopelessness, as though the total removal of the uterus for cancer of its neck afforded no prospect of prolonging life, no hope of even arresting the disease temporarily. He regretted to say that he belonged to the latter class. He had had over eighty cases of cancer of the uterus in the last six years. Of that number he had but one patient alive to-day. He did not think errors in diagnosis would explain the difference in experience, because cases of cancer of the cervix were usually unmistakable.

Last year he made the remark that there were cancer belts as well as cancer houses; that in some sections of the country hysterectomy gave better results in favor of recurrence and of the prolongation of life than it did in other sections, even though the operations were made by the same men and men of equal skill. He believed a careful collation of statistics would prove that. A gentleman in Buffalo had been going over the death rate from uterine cancer and cancer of the cervix, mapping out the various regions in which fatal cases had occurred in the city of Buffalo; and Dr. Gaylord, who was in charge of the State laboratory for the investigation of the cause of cancer, assured him that he was expecting great results. As far as the researches had gone, some remarkable things had been shown, namely, that in some houses four and five cases of cancer had occurred. He saw a map in which the region of Western New York, with a belt through Central New York extending into the Hudson River Valley, was put down as a dark shade, indicating the greatest prevalence of cancer in that belt. If this were true, if later investigations proved there was such a thing, it would follow that in operations for the removal of cancer of the uterus anywhere within a belt line or region in which it predominated numerically, the results of hysterectomy would be worse in that region than in others more favorably located.

So far as he was concerned, he was ready to abandon hysterectomy, excepting in the most favorable cases. His sole surviving case was just on the verge of the inoperable. It might be that by

resorting to a more radical operation, laying open all the broad ligament spaces, enucleating all enlarged glands as in the Halsted operation for cancer of the breast, better results might be obtained in the future. But he doubted it. In his own work he had had as many cases of prolonged non-recurrences after the Sims method as he had had after total hysterectomy.

DR. HUNTER ROBB, of Cleveland, Ohio.—His personal experience and observation were in accordance practically with those of Dr. Baldy. In making up statistics with reference to recurrence of cancer, the cases should be divided into two classes, namely, those in which radical operative procedures are carried out, and those in which palliative measures are carried out.

In reference to the frequency of cancer of the body of the uterus, many operators were finding out that it was more frequent than it had been generally supposed. Within the past year he had had in his clinic three cases of carcinoma of the uterine body in which the clinical symptoms practically indicated no interference with the uterus, simply a vague suggestion of some hemorrhagic endometritis in women near the menopause. He, however, carried out his usual procedure, curetted, and was able to demonstrate carcinoma involving the fundus, and by examining the uteri which were removed he was able to confirm his diagnoses.

DR. MATTHEW D. MANN, of Buffalo, knew the profession was not ready yet to accept the evidence of what had been done in Buffalo, but personally he felt quite convinced that in the State laboratory the cause of cancer had been discovered. Dr. Gaylord's first paper was to be followed by another one in which he would give the details of the experiments he had made. He only asked the Fellows to remain neutral in the matter, and be willing to accept the statement of the discovery of the cause of cancer when proof was given.

In regard to the matter of cancer belts, it had been shown conclusively by the results of the United States census where cases had been located, and it had likewise been shown that there were several cancer belts in the United States. There were several in Germany. There was one particularly in the United States, of which Buffalo was a centre, running down from Canada, in the neighborhood of Toronto, toward Pittsburg. In that belt there were more cases of cancer, according to the United States census, in proportion to population, than in many other parts of the country.

DR. R. STANBURY SUTTON, of Pittsburg, emphasized the importance of differentiating between sarcoma and carcinoma, the former being a more fatal disease than the latter. Sarcoma was liable to manifest itself in the formation of nodules about the neck of the uterus.

In regard to cancer belts, it had been proved that cancer was more prevalent along the streams, but the great mass of the human family selected the valleys for their abode, and thereby some

discrimination should be exercised in estimating a cancer belt. The women of the Highlands of Scotland were freer from cancer than any other class.

DR. T. A. REAMY, of Cincinnati, had operated on six hundred cases of cancer of the uterus of different forms. The results of that work had been extremely discouraging. In a very large percentage of the cases the disease was not arrested and the patients died. But it was not true that in every case where cancer attacked the cervix the case was incurable, or that the patient did not recover after the disease had been thoroughly removed by operation. On purely anatomical grounds cancer of the fundus of the uterus was more likely not to be followed by recurrence than cancer of the cervix. But if the cervix was removed or a hysterectomy was done while the disease was confined to the intravaginal portion of the cervix, there was some chance and some hope of effecting a cure. He mentioned the case of a woman from whom he removed the cervix eighteen years ago by doing high amputation. The woman was still living. It was not the only case he had operated on for cancer in which a cure had been effected. He knew of more than two dozen cases in his own work where operations were done for cancer of the cervix and the women had entirely recovered. Nearly one-half of those were cases of high amputation of the cervix, the disease not extending beyond the intravaginal portion.

DR. A. PALMER DUDLEY, of New York, remarked that two years ago one of the professors of medicine in the Post-Graduate Hospital, New York, brought him a case of extensive cancer of the cervix and body of the uterus, the whole fundus being involved and broken down until only a shell of the cervix remained. The bladder wall was inflated into and half-way down to the anterior wall of the vagina, involving the base of the bladder. The rectal wall was infiltrated until it was three-quarters of an inch thick. He told the professor that it was utterly impossible to have removed the disease with any prospect of effecting a cure. However, he did a vaginal hysterectomy, using clamps only, and removed the uterus. The woman recovered. He was not satisfied to report that case to the Society at that time. During the past year he had been working along the same line. He had added three cases to his list, making four in all. Some of the Fellows might say that it was quackery that he was going to give them, but he was going to put it on record. He treated that woman with a hypodermatic injection of a preparation which he would mention shortly, using a saturated solution part of the time, injecting it into the vaginal vault, and part of the time into the outside thigh. To his surprise, every bit of the cancerous tissue cleared up. He had the woman under his care for a year. She came to his office a year and a half afterward, a perfectly well woman. The other three cases had not been under observation sufficiently long to give the results of them. He felt that he could no longer withhold from the Society what he was doing,

because of the fact that there were many men present who saw more cases of cancer than he did. Three days ago, before he left New York to attend the meeting, he injected a case of cancer of the breast. The preparation produced no constitutional effect other than a stimulation of the nervous system such as would be brought about by strychnia. His reason for using it was because it was recommended as a great absorber of scar tissue. He had used it in two cases of septic infection of the arm and hand with splendid results in clearing up the scar tissue as the result of various cuts. It was thiosinamine, prepared by Merck in 15 per cent solution, ten to thirteen minims of which were injected hypodermatically twice a week.

DR. EMIL RIES, of Chicago, by invitation, stated that in 1895 he began to remove the iliac glands together with cancer of the cervix. Practically nothing was known as to the involvement of these glands in the early stages of the disease. Authors of text books stated that there was no such involvement in the early stages. He was not the only one who had found cancer of the iliac glands in early cases of cancer of the cervix. He was glad to report that of seven of his cases, in four, where the examinations had been finished, these glands had been found involved; that was to say, in cases where the uterus was freely movable, where the cancer had not extended beyond the cervix, and where the cases would have been considered suitable for vaginal hysterectomy, in those cases carcinoma of the glands had been found, the glands having been removed in the course of operation, and not one of the patients had had a recurrence thus far. He saw the first patient he operated upon a little over a month ago. It was now four years since the operation was performed, and the patient was free from recurrence. Wertheim, of Vienna, had reported a little over thirty cases in the *Archives of Gynecology* with a mortality of 33.1 per cent because he went beyond the indications the speaker gave the first time he proposed the operation. However, Wertheim had since restricted the indications and had reported the results of his work before a recent meeting of the German surgeons in Berlin. He had now operated on a total of fifty cases, his latest case being over two years since the operation was done. A recurrence so far had not occurred in any of the cases that had survived the operation. In Berlin a few operators had removed the glands, examined them, and they did not show carcinoma. This did not prove anything. First, because the glands had not been removed completely; second, because the glands that had been removed had not been examined in serial sections throughout. If this was not done we did not know anything as to what the glands contained. In France and Belgium a number of operators had done this operation many times, but he had not been able to get any statements of results of the examinations of the glands. In Wertheim's cases the glands were involved in the carcinoma.

In America, at the Johns Hopkins Hospital operators had re-

moved the glands in a limited number of cases. Dr. Kelly had given up the operation because he failed to find carcinoma in the glands. The microscopical examinations given in Clark's paper and in Cullen's book on "Cancer of the Uterus" were absolutely insufficient. No statement was made of serial sections having been examined, and there was no statement as to series of glands having been removed. The statements of those gentlemen, therefore, had to be left out of consideration. A few of those who had gone ahead and done this operation on early cases had had the pleasure of seeing their theoretical calculations verified by the microscopical examinations of the glands removed. As the operation had not extended over a period of more than five years, he could not give all of the results of the cases he had operated on to date.

DR. BALDY, in rebuttal, expressed a disbelief that lacérations of the cervix had a universal connection with cancer of the cervix. He did not believe it for the reason that, in the early cases he had seen, the cancerous process had not developed at the site of the scar tissue. The disease extended generally up the cervical canal to the internal os and spread laterally.

As to why cancer was less fatal when it developed in the fundus than in the cervix, he had been unable definitely to make up his mind. Possibly the thickness of the uterine wall was one element. Another element was the anatomical fact that the uterine mucous membrane lining the fundus terminated at a given point, the lymphatics of the fundus of the uterus, where polypi developed, and we had cancer developing from a polyp. One could easily detect a similarity. When the distribution of the lymphatics in the cervix was understood, the elements he had mentioned would appeal to us as a probable cause of why the disease was more fatal when it attacked the cervix than the body of the uterus.

If the practitioner was taught the importance of sending his cases to a specialist early, and was told that 20 or 30 per cent of them could be saved by so doing, he would do it.

He thought the statements of Dr. Ries were misleading. He had made the statement repeatedly, and he would make it again, that the man did not live who could thoroughly clean out the pelvic glands in the living woman. He challenged any man to prove differently. Quite recently the speaker asked Dr. Clark to give the results of those cases in which he had cleared out the glands, as compared with those in which the glands were not removed, and Clark admitted that there was no difference practically in the results.

DR. KIRKLEY, in closing the discussion, had hoped that the blastomycetic or parasitic origin of cancer would be brought out in the discussion. He hoped Dr. Dudley would continue his investigations. Was it not reasonable to believe that there was no better basis for a rational treatment of cancer than the protozoic theory of it?

DR. HENRY T. BYFORD, of Chicago, read a paper entitled

PROLAPSE AND PROCIDENTIA OF THE UTERUS.

Dr. Byford holds that the essential feature of prolapse is the want of supporting power of the pelvic connective tissue. To suture the uterus to the abdominal walls is to support the pelvic connective tissue by means of the uterus and is wrong and inefficient. The best and most rational method is to draw up and attach the periuterine tissue and thus keep the uterus up by means of its natural supports. In addition to the ordinary operations for lacerations and relaxation at the vaginal outlet, the following method is proposed:

First, shorten the round ligaments intraperitoneally, making one large loop of each ligament, and then stitch the loop to the parietal peritoneum a little above, and internal to, the internal inguinal ring, which is plainly marked by the entrance of the ligament. The uterus is now held in a nearly normal position, and the relationship of the other ligaments, as well as the effect of our work upon them and upon the position of the uterus, can be gauged at every step.

Second, suture the infundibulo-pelvic edges of the broad ligaments forward to the parietal peritoneum, external to the internal inguinal rings, as high as they can be drawn without much resistance. Then suture any available relaxed part of the broad ligament forward over or beside the round-ligament loops.

Third, put a suture through the base of each round ligament at its junction with the uterus, and suture it to the peritoneum over and beside the bladder.

Fourth, examine the sacro-uterine ligaments. If the peritoneum corresponding to their location is not drawn up and made somewhat taut by the new position of the uterus, or if the cervix sags far forward toward the vaginal entrance, take a short fold or tuck in it and suture it to the broad ligament beside the cervix, and perhaps slightly to the edge of the cervix, getting as broad a peritoneal apposition as possible.

Fifth, search for the remains of the urachus at the lower end of the abdominal incision. Start a slit in the peritoneum an inch above the lower angle, and half an inch on either side, and extend them downward and outward to the bladder wall. Make a transverse incision on either side, uniting the upper end of the slits to the abdominal incision. Separate the peritoneum between these slits, including as much connective tissue as possible, from the underlying fascia, and there will be formed a partly divided flap of connective tissue and peritoneum with the urachus near its centre. Fold or twist this loosely into a sort of cord and attach it to the rectus fascia at the edge of the incision, and high enough up to draw the bladder and anterior peritoneal wall well up. This suspends the bladder somewhat after the manner described by Dawson.¹

¹British Medical Journal, July, 1898.

The external sutures should catch hold of the newly-formed vesical cord, or artificial urachus, and the lower one may even engage a few fibres of the vesical wall.

PANHYSTEROCOLPECTOMY—A NEW PROLAPSUS OPERATION.

was the title of a paper read by DR. GEORGE M. EDEBOHLS, of New York.

The very multiplicity of operations heretofore proposed for the cure of complete prolapsus of the uterus and vagina is proof, if such were needed, that no operator of larger or longer experience is entirely and absolutely satisfied with the results of all his prolapsus operations. There is room, in the treatment of complete prolapse of the uterus and vagina, for an operation which, properly and successfully performed, will guarantee a certain and permanent cure of the prolapse. Such an operation is panhysterocolpectomy, the essentials of which consist in complete removal of the uterus and vagina, followed by operative obliteration or columnization of the bed of the genital tract. The tubes and ovaries are not disturbed, if healthy; if diseased, they are removed with the uterus and vagina. Obliteration and columnization of the bed of the removed uterus and vagina is effected by means of from seven to nine buried pursing sutures of chromicized catgut placed about two to two and a half centimetres apart and running parallel to each other. Each suture gathers the raw surfaces from the periphery in circular fashion, and draws or purses them together in the median line. It is buried by being pushed upward toward the abdomen, while the next suture is being tied beneath it.

The effect of the completed operation is to build a solid pelvic floor ten to fifteen centimetres in depth, and to establish broad apposition of the base of the bladder and the anterior surface of the rectum, conditions similar to those obtaining in the male pelvis.

The patient is kept in bed for a week after the operation. Recurrence of prolapse is impossible after a correctly and successfully performed panhysterocolpectomy. The operation is indicated in the severest cases of total prolapse, and more especially where other operative procedures have been tried and failed. The interference with further marital relations must be explained and accepted by the patient prior to operation. In the case of a married woman the husband must also be consulted. Four cases have thus far been operated upon by the author of the operation, all with perfectly satisfactory results.

DR. HENRY D. FRY, of Washington, had seen Dr. Edebohls perform this operation on the fourth one of the series of cases he had reported. It was an operation that was well worthy of consideration, for the reason that it was absolutely impossible for the patient to have any future trouble from the procidentia. In this fourth case, it was one that had been under his care, the woman

being 67 years of age, who had complete procidentia of the uterus and vagina. She was so feeble physically that he did not think it wise to subject her to a serious operation. He simply performed the Freund operation, putting in two rows of puckered string sutures, of silver wire, in her vagina. She remained well for a while, but during an epidemic of la grippe contracted this disease, and during a severe coughing spell one of the sutures was dislodged. She went to one of the dispensaries and it was found that one of the sutures had ulcerated through. Both rows of sutures were then removed, followed by a recurrence of the procidentia. He did not hear anything more from the patient until he looked her up. Knowing that Dr. Edebohls was coming to Washington, he wanted to get him a good case on which to try the operation he had described. Dr. Fry found she had gone through a second experience in entering one of the hospitals, where a ventrofixation had been performed, and soon after leaving the hospital the cervix still projected from a certain portion of the vagina down through the vulva. He sent for her to come to the hospital to have a third operation performed. She finally consented to do so, and Dr. Edebohls operated in the manner described. There was very little bleeding from the dissection of the vagina, which seemed to be the most difficult part of the operation, and one during which great care must be exercised to avoid wounding any of the surrounding structures. The uterus in this case was firmly fixed to the abdominal wall, as a result of the previous operation on the uterus; it stretched itself out so as to be as big around as one's finger, and extended from the fundus up against the vaginal wall and projected several inches beyond the vulva. This adhesion of the uterus to the abdominal wall was so firm that Dr. Edebohls had trouble in getting it away. Convalescence was good. Temperature exceeded 100° F. for two or three days. On the third day it was found to be a little over 99°. On the seventh day she was well enough to leave bed, and on the tenth day she returned home. The operation lasted a little over an hour. He was favorably impressed with the operation for this particular class of cases, where recurrence took place after other operations, or in the stubborn cases of procidentia.

DR. HUNTER ROBB, of Cleveland, read a paper entitled

PUS IN ABDOMINAL CASES.¹

DR. MATTHEW D. MANN, of Buffalo, said there were many points in connection with pus in the pelvis that were still unsettled. The infections which were found in the broad ligament, and which almost always followed labor, were apt to be of the streptococcus type. Within a comparatively short time he had had four of these cases, and every one of them died, although after opening the abdomen and carefully cleaning out the abscess cavity the tubes and ovaries were found perfectly normal. After cleaning out the abscess cavity, washing out the abdomen thor-

¹See original article, p. 153.

oughly and draining, two of them being drained through the vagina and two by the abdomen, every one died with general streptococcic infection. The abdominal wound, the general peritoneal cavity, the drainage tube track through the vagina—everything was simply covered with false membrane and sloughing tissue. Such cases were rare, and they did not comprise the majority of cases of pus in the pelvis. When a patient had an elevated temperature at night and a little lower temperature in the morning, and this went on indefinitely, and on examination a small exudate was found behind or in one broad ligament, the conclusion should not be reached that it was tubal trouble and should be immediately operated on. He believed those cases had better be let alone for a considerable time. They were usually high up in the broad ligament toward the pelvic wall, and difficult to reach through the vagina. All of the cases he had had were away up in the upper part of the peritoneal cavity under the fimbriated extremity of the Fallopian tube. If these cases were let alone, and were not operated on at once either through the vagina or from above, and the abscess allowed to enlarge so as to come to a point, so that it could be reached through the vagina, the adhesions that took place would wall off the upper part of the pelvis and abdominal cavity, and when an opening through the vagina was made and drainage established these cases would be saved. He mentioned one recent case where that plan was followed. The tendency toward immediate operation was opposed by the patient. She was nourished and kept in as good condition as possible until the abscess had attained considerable size and could be reached through the vagina. A posterior incision was then made, the abscess found, evacuated, a drainage tube inserted, and the patient recovered without any trouble.

DR. PHILANDER A. HARRIS, of Paterson, N. J., agreed with Dr. Mann and said that in certain cases a vaginal operation should not be done too hastily. He had operated on a case too hastily this year, and, while the patient did not die, he would have done much better to have waited for the abscess to attain a larger size before operating. And still there was another standpoint from which to view this work. Pryor and others who had done advanced work in vaginal section for pus in the pelvis would endorse the statement which he would make, that in a very considerable percentage of cases fluctuation was not discovered. In a very considerable percentage of cases where pus could be found in the pelvis and it could be reached in a few moments by vaginal section, the quality of fluctuation was not perceived, so that if there were delay the operator would fail to reach and promptly relieve a large number of cases which might otherwise be quickly and efficiently operated by vaginal section.

DR. EDWARD REYNOLDS, of Boston, felt strongly regarding the matter of pus in the pelvis, because of his hospital experience and the after-results in these cases. Out of nearly sixty cases that

came to him, he had fifteen or twenty pus cases, or acute inflammatory cases, on hand most of the time, and he found himself in accord with Dr. Mann. He had learned to let these cases strictly alone, watch them, and see that they were not going to the bad. Unless they grew worse in their general constitutional condition, if there was no run of temperature, he let them alone. Persistent depletion and constitutional care generally resulted in the disappearance of the mass in the pelvis or its reduction to a small, non-tender affair, in which latter case he waited two or three weeks or a month before interfering, in order to get rid of the infection. He had made it a rule to attack these cases by the vagina, not by the abdomen.

In a case in which there had been an acute infection for a month or so, in his experience, if the infection remained acute for a number of weeks or months, with an elevated temperature, it was almost always streptococcus infection, either pure and simple, or it was complicated with other infections. The rigid application of that rule had brought about a marked improvement in his results. Of over forty such bad cases attacked by the vagina, he had lost two of his recent cases, one due to a mistake made by the interne, who removed the packing in a case in which there was a smart hemorrhage, followed by a severer hemorrhage twelve hours later, from which the patient never rallied. The other case was one of tremendous constitutional infection with streptococcus, in which, although the patient was in all probability doomed from the start, there was a considerable local mass, and he thought it fair to give her the benefit of the doubt. She felt better for a few days after the pus was evacuated, but subsequently died. All the other cases recovered.

DR. W. O. HENRY, of Omaha, Neb. (by invitation), stated that some three or four years ago he learned that cases of acute infection in the pelvic and abdominal cavities should not be attacked through the abdomen, and he had not opened the abdomen in this class of cases for three or four years. This was a very important point to remember in cases of abscess or infection following either abortion or labor. He believed in these cases the uterus should be cleaned out, all raw surfaces thoroughly curetted, and the whole surface touched with pure carbolic acid. By the latter measure further infection was arrested and what little infection had occurred would be controlled.

DR. REUBEN PETERSON, of Chicago, said that most gynecologists had seen the bad effects of opening the abdominal cavity in cases of acute infection. His attention was first directed to this in operating upon ovarian cysts which had become acutely infected. He lost three of these cases in rapid succession. He thought we should distinguish between two classes—one where the pelvic cellular tissue was involved, the other where the tube and ovary were at fault. It was sometimes difficult to differentiate between the two. Recently he had had a case which had given him considerable sorrow, inasmuch as it occurred in his own

family. The patient came to the hospital at five o'clock, she was delivered at seven o'clock, and there was no examination made by the vagina. The delivery was followed by no vaginal douches; and as far as sepsis from without was concerned, it would seem as if it was one of those cases where it could be ruled out. On the third day the woman had a chill and the temperature rose to 103.6° . He immediately curetted the uterus and could find nothing the matter with it; still the symptoms of sepsis persisted and seemed to point to something on the right side. During an abdominal section he opened through the cul-de-sac. He emphasized the point brought out by Dr. Mann, namely, that he could reach nothing. He could feel nothing from below. He went up as high as he could, but he could not reach any pus sacs. There was nothing in the cellular tissue except indurated tissue. Still he hesitated to open the abdomen, and he thought he would wait, hoping the pus would eventually point into the vagina. On the thirteenth day the temperature rose to 105° , pulse to 130. Then he decided to wait no longer, and not knowing whether he had infection of the uterus, of the tubes, ovaries, or cellular tissue, he removed the uterus by the vagina. As he removed it, about one-quarter teaspoonful of pus came from the right tube. Microscopical sections of the uterus showed it to be perfectly normal, and yet this small amount of pus caused death from peritonitis in three days. The operation was done a few days ago, and he had not had a chance to work out the bacteriology of it. But to his mind it pointed to a virulent streptococcic infection.

DR. A. PALMER DUDLEY, of New York, stated that in his service at the Post-Graduate Hospital he was brought in contact with a great many such cases as had been described by Dr. Robb, among the Italian women of the East Side of the city. He treated them expectantly and saved the lives of most of them. It was seldom, in his experience, that he had seen a case of suppuration of the ovaries, unless it was a large cyst that had undergone suppurative degeneration; and when he had, the pus had been exceedingly virulent. He lost one patient last winter in this manner. The case was one of adherent ovary, and in getting the ovary out he ruptured the small sac and not over half a teaspoonful of the contents, not apparently pus, escaped into the pelvis. In examining the specimen, after the patient had been taken to the ward, he found it was a dermoid cyst, and he had squeezed a little of the contents of the sac into the pelvic cavity. The patient had an abscess covering the entire abdominal cellular tissue, extending from the iliac fossa on both sides extraperitoneally. He opened the abscess, drained from below, but the woman died from septic pneumonia. Every organ was found filled with streptococci.

For the last two or three years, when he had a case such as those that had been discussed, he put the patient to bed and applied ice. He had found that pus will work in the direction of least resistance in all cases. He applied ice on the abdomen and kept it there constantly for days; then he directed the patient to

have three hot douches a day, at a temperature of about 116°, using about six quarts of water. This drove the pus toward the vaginal vault. During this time he resorted to hypodermatic injections of quinine to keep down general sepsis as much as possible, using at the outside three and a half grains of quinine three times a day. At the end of a week or ten days the patient was ready to have a pelvic exploration. If the pus was in the tube or ovary, it could be reached; if it was in the broad ligament, after vaginal section, it was easy to pass a pair of forceps or scissors into the pelvis and puncture the broad ligament from the rear and let it drain. He had done this repeatedly in the past year in the cases he had mentioned of pelvic suppuration following abortion in Italian women, and, aside from the one case mentioned, he had not lost any other patient.

DR. ROBB, in closing the discussion, agreed with Dr. Mann that most of the streptococcus infections were in the broad ligament. There we would expect to find the greatest amount of cellular tissue, and it was known that streptococci ran along the lymphatics. He had been impressed with the small amount of involvement of the tubes and ovaries in cases of streptococcic infection. He had frequently found a small tube adherent, plastered to the pelvic wall or broad ligament or tube, and the ovaries adherent to each other and to the broad ligament. Some of these cases he had examined bacteriologically and microscopically, and had found two or three drops of pus. In taking the ovary out, cutting it open, making a Paquelin cautery incision into the ovary, and smearing a cover-slip for examination, he had found on several occasions virulent streptococci. He had confirmed this by injecting the organism into animals, killing the animals with the same organism. Great care should be exercised, in operating on these cases, not to spill any pus in the peritoneal cavity. By guarding against this, in many instances infection would be avoided. A small amount of pus, only a drop or two, spilled in the peritoneal cavity, might cause a fatal termination.

He could not altogether agree with the method of applying carbolic acid to the uterus as mentioned by Dr. Henry. He was rather fearful of that procedure, having seen one or two instances where the condition seemed to be aggravated by its application. Under the circumstances, where there was infection, the uterus was in such a condition of inflammation that any further injury which might be produced by the application of carbolic acid would, in all probability, increase the liability to extension of the infection.

REMOVAL OF THE FEMALE URINARY BLADDER FOR MALIGNANT DISEASE.

A paper with this title was read by DR. MATTHEW D. MANN, of Buffalo, N. Y.

Dr. Mann says that the operation for removal of the bladder has not received enough attention in this country, there being very

few cases on record. Cancer of the bladder is rare, but is the commonest form of growth found in the bladder. The diagnosis can be made by the symptoms, the use of the cystoscope, palpation, and the examination of the urine.

Treatment may be removal through the urethra, the vaginal septum, or by suprapubic cystotomy. The operations are the removal of the growth and its base; resection of part of the bladder; or cystectomy.

Indications for total removal are multiple growths; return after removal; extensive involvement of the base; and extension of cancer of the cervix uteri into the bladder.

The ureters need no attention at the time of the operation, as by the removal of a portion of the anterior vaginal wall they will discharge into the vagina. If possible, the ureteric openings into the bladder should be left intact. This will rarely be possible. He does not believe in uretero-intestinal anastomosis. The vagina can be used as a receptacle for the urine, as was done by Pawlik. If this be done, there will be little danger of infection travelling to the kidneys, as the newly-made bladder can be kept clean.

The operation is done in the Trendelenburg position. The peritoneum over the bladder being cut, the bladder is enucleated by the fingers, and the base, with the anterior vaginal wall still attached, is removed. The uterus is then removed, and the peritoneum closed over the floor of the pelvis.

Mann reports two cases, both of which recovered from the operation, and has collected from the literature fourteen cases more. He concludes that in certain malignant diseases of the bladder total extirpation is a justifiable operation, offering no serious difficulties to an experienced abdominal surgeon, and giving the patient a chance for a comfortable continued existence.

TOTAL EXTIRPATION OF THE URINARY BLADDER.

This paper was read by DR. J. WESLEY BOVÉE, of Washington, D. C. He said the wonderful strides in operative surgery are typically represented in surgery of the urinary organs. He gave an epitome of the history of operative procedures in partial and complete removal of the bladder, and a digest of 96 cases which he had collected from the literature. He discussed the methods of disposal of the ureters, the indications and contra-indications, and the results of all operations up to date, and presented the following conclusions:

1. Until a more satisfactory plan of disposal of the ureters is found, cystectomy should never be undertaken for conditions other than exstrophy, when partial extirpation of the organ is possible. Even a very small portion of the bladder into which the ureters may be debouched is practically free from danger of infection incident to bowel grafts, and further such disposition of the ureters is more easily executed.

2. For exstrophy of the bladder the Maydl and the Pozzi opera-

tions are quite satisfactory, though the danger of infection seems ever present.

3. Rectal graft of the ureter in its continuity and skin-grafting of this duct are highly dangerous.

4. Uretero-vaginostomy is practically free from ascending infection, though it gives far from perfect results.

5. Urethral graft of the ureter seems free from infection, but the constant dribbling of urine is but slightly ameliorated by the use of a urinal.

6. The Mauclaire-Gersung operation is worthy of further application, inasmuch as it provides for both sphinctered bladder and bowel.

DR. REUBEN PETERSON, of Chicago, in opening the discussion on these papers, stated that a few years ago he had sent to him for operation a negress who had a tumor of the bladder which proved to be malignant. While he was considering the question of where to put the ureters, the patient's condition became such that it was evident a total extirpation of the bladder would be impossible. But his interest was aroused in the subject, and he proceeded to perform a number of experiments of transplanting the ureters into the bowel, the results of which he presented to the society last year. He was gratified to learn that Dr. Mann had accepted his conclusions, and had arrived at his own conclusion that uretero-intestinal anastomosis was an unjustifiable operation. The animal or the human being whose severed ureters were placed in the bowel either died from an acute infection or later of pyelonephritis, or if the pyelonephritis was overcome the patient lived with a contracted kidney. After analyzing the conditions, he was able to offer so little to the patient that he was unjustified in placing the severed ureter within the bowel. With the Maydl operation, or the implantation of the trigonum into the bowel, there was a different condition. He had shown by experiments on animals that the kidneys were able to take care of infection in such a way that the animal's life would be spared for a reasonable time. If we were going to extirpate the bladder for carcinoma, we would have to sever the ureters from the bladder, and then the question arose, Where should they be placed? Dr. Bovée had conclusively shown by statistics that it was exceedingly dangerous to place them in the skin. All the cases of exstrophy of the bladder which had been collected had shown that patients died at the average age of 22 from infection, showing that even in those cases of exstrophy of the bladder where there was no constriction of the ureters they died from outside infection. So he thought the placing of the ureters in the skin could be ruled out as a feasible procedure. Besides the skin and the bowel, which he had ruled out, there were the urethra and the vagina. His experimental work shows that stitches could not be passed through the ureter and join it to any organ or substance without stricture taking place, and a certain number of

cases would die of hydronephrosis. Therefore, the Sonneberg operation of implanting the ureters into the urethra would not be very successful.

Regarding the operation of Dr. Mann, he (Mann) had devised an operation whereby the bladder was removed without much difficulty in fifteen or twenty minutes, and the severed ureter was dropped down into the vagina. The urethra opened into the newly-formed bladder, and there was no stitching of the severed ureter. Under those conditions the ureters were in the most favorable situation for non-infection. He believed that if Dr. Mann performed the operation again, it would be better to close the vagina at once, because if it were done secondarily he would have the same danger of infection that obtained when the ureters were implanted in the skin, or there would be more danger because the vagina was a more septic cavity.

DR. LAPHORN SMITH, of Montreal, said he had done several operations on the bladder through the vagina, and suggested that Dr. Mann, at his next operation, tie the tubes to the incision in the anterior wall of the vagina, and not remove the uterus by the abdomen. If a ligature was put around both tubes, and the uterus and tubes were left, risk of urine getting back into the peritoneal cavity would be avoided. If we could remove the bladder through an incision in the anterior vaginal wall, it could be done easily, its peritoneum peeled off from it as the bladder was peeled down. This would diminish the danger very materially; then the ureters should be put into the sides of the incision.

DR. R. STANSBURY SUTTON, of Pittsburg, said he had had no experience with the operation of Dr. Mann. Dr. Smith had alluded to the danger of transmission of urine through the cavity of the uterus and through the tubes. He did not think that this danger existed, and he was led to think so from the fact that many years ago he filled a hole in the bladder with the neck of the uterus. It was not possible for him to close the large fistulous opening between the vagina and bladder without utilizing the cervix, and he utilized the cervix in this case to help fill up the gap, and did so successfully. The woman menstruated through the bladder for a number of years, and then ceased menstruating. She was perfectly well now.

DR. BOVÉE, in closing on his part, said that the work that had been done by Dr. Mann was along the line of progressive surgery. There was one important point that occurred to him as to the raw surface left, namely, the danger of infection along the ureters during the process of healing of this raw surface which was left in the anterior wall of the vagina around the ureteral orifices, as well as by the extravasation of urine in those parts. In such an operation it would be advisable to try to keep the raw surface in as clean condition as possible until granulation had taken place, and then close the vagina at a subsequent operation, as Pawlik did, twenty-five days later.

DR. MANN, in closing the discussion, replied first to the sugges-

tion of Dr. Smith of taking out the bladder by the vagina. The bladder had been removed by the vagina a number of times, but he did not believe it was as good an operation as to remove it from above. There was a big fold of peritoneum left, which could not be gathered together and sewed as nicely from above, where urine might accumulate, and there would be danger of sticking the finger through it in the process of enucleation, and he did not believe as clean an operation could be made as if it were done through the abdomen.

In regard to the management of the vagina, if it were closed immediately afterward it was undoubtedly the better plan. He suggested this in his paper. If the vagina were closed immediately, it could be drained by a retention catheter, the urine drawn off every half hour, the cavity kept under water to prevent the ingress of air, and the fluid being drawn off or drained off continually or frequently. In his cases there did not seem to be any infiltration of urine, and no force sufficient to carry the urine up under the peritonéum. He did not think the urine was in any sense septic or interfered in the slightest degree with the process of healing.

In regard to the removal of the uterus at the time of the operation, this was not a necessity. In his first case he did not do it. He did it in the second case because he thought there would be danger of clots of blood forming from menstruation and possibly getting into the bladder and making trouble there. He thought the danger was to the bladder rather than to the uterus. That was the reason he took out the body of the uterus, leaving the cervix, not diminishing the capacity of the new bladder any more than possible.

What Dr. Bovée had said was quite true regarding the danger of infection from the raw surface which was left in the anterior vaginal wall. If the patient could be tided over that period until cicatrization had taken place, he believed she would go on indefinitely, and he thought that was the problem of the future, to decide how best to manage that part of the operation or the after-treatment. He was inclined to think that by closing the vagina at once, keeping it washed out frequently during the process of healing, giving antiseptics, etc., it would keep the urine aseptic.

SHOCK, FROM A CLINICAL STANDPOINT.

DR. EUGENE BOISE, of Grand Rapids, Mich., read a paper with this title.

The generally accepted idea that the pathology of shock is essentially a paresis of the vasomotor nerves does not seem to be borne out by the clinical manifestations, when analyzed according to undisputed physiological facts.

The basis of the theory of paresis is the thought that the extremely low arterial tension of shock is inconsistent with vasomotor stimulation, which, by causing arterial contraction, should

give high tension. On the contrary, the symptoms of shock can, in reality, only be explained by the theory of extreme *stimulation* of the *entire sympathetic system*. Laboratory experiments have demonstrated that extreme stimulation of the cervical sympathetic will cause cardiac and arterial *spasm* with consequent *low* arterial tension by reason of incomplete diastolic relaxation of the heart. Postmortem records show that in fatal cases of shock the heart is found contracted and empty, even ruptured, showing a condition of extreme *stimulation* of the vasomotor system rather than paresis.

In shock, then, there is arterial and cardiac *spasm*, with consequent low tension. This causes the peculiar pallor and the condition of mental and physical lethargy. The perspiration of shock is caused by stimulation of the secretory nerves of the sweat glands, branches of the sympathetic system.

Experiments have shown that the secretion of perspiration is independent of vascular conditions.

The other clinical manifestations of shock can readily be explained by this theory of hyperirritation of the entire sympathetic system, and *only* by this. Moreover, those remedies which are of benefit in shock are such as act as sedatives to the vasomotor nerves.

Nitrite of amyl and nitroglycerin are noted arterial relaxants, and yet they are very beneficial in shock. So, also, with strychnia. The opinion of operators of large experience is that to be of benefit it must be given in very large doses. And yet all therapeutists agree that in such doses strychnia *paralyzes* the vasomotor centre and the intracardiac ganglia, and therefore is absolutely contraindicated if the vasomotor nerves are already parietic. So also with normal saline infusion. To derive the greatest benefit it should be used intravenously and at a temperature of 118° or 120°.

Thus, when diluted by the mass of blood in the vena cava, the temperature is so reduced as to be *sedative* to the irritated cardiac and arterial nerves and muscles, and their spasmodic condition is relieved. Therefore shock is essentially a hyperirritation of the entire sympathetic system of nerves.

The PRESIDENT'S address was on

THE FUTURE OF GYNECOLOGY AS A SURGICAL SPECIALTY.

A large proportion of the major pelvic operations are now made by men who are not specially recognized as gynecologists. Surgery in general has made as marked advances in all directions as that which was at one time, by common consent, relegated to the specialist. The lay public has become more familiar with serious abdominal operations made by the general surgeon than those made by the gynecologist. The great frequency of operations for appendicitis, on the gall bladder, for intestinal injuries, and for other intra-abdominal conditions, has educated

the public to place much reliance upon the surgeon at large in a field of surgery which at one time was regarded as the exclusive domain of the specialist. The same woman who would apply to the general surgeon for the removal of her ovaries would seek by chance the specialist for the performance of a genito-plastic operation. In her choice of a surgeon she is guided more by her senses than by her knowledge of her physiology.

Gynecology will always have its future, possibly brighter, more generally fraught with usefulness from the fact that its best minds are no longer concentrated upon matters purely mechanical and which appeal to a comparatively few unfortunates, but because it will embrace in a broader scope all humanity. These are a few of the problems which the gynecology of the future must meet, and with which men trained as we are ought to feel a profound interest. We not only study the diseases peculiar to women, but we must also study social conditions that may tend to disease. There is no other department making such imperious demands upon its advocates as the gynecology of the present, and we may be sure that it will not diminish in the future. There is nothing that contributes to the mental equipment of a man that the gynecologist can do without. The ascendancy of gynecology as a surgical department will in no manner diminish because it shares its surgical triumphs with all who have the skill and knowledge to follow its lead; on the contrary, it will have a greater moral power when its advocates can find a field, broad and in close touch with humanity all about, beyond the limits of the operation room.

(To be concluded.)

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, May 14, 1901.

The President, H. J. BOLDT, M.D., in the Chair.

ECTOPIC GESTATION AND AN OVARIAN CYST ON THE SAME SIDE.

DR. A. BROTHERS.—I wish to present to the society the following interesting case: The patient, A. C., aged 27, a dressmaker, eleven years in this country, a Russian, was admitted to the Beth Israel Hospital on the 6th day of May. Her family history is negative. She was married eight years ago and had four children, one the first year after marriage. The **last** was instrumental nine months ago. She is nursing it at the present time. She has

always been perfectly well except an occasional leucorrhœal discharge. Four weeks ago she was seized with severe abdominal cramps followed by bleeding from the uterus. These symptoms continued for five days. A week later they again appeared and are now present. The cramps were so severe that she fainted three times on the 5th inst. She also complained of retention of urine, exhaustion, constipation, etc. Her pulse was 90, temperature 98.4° , respiration 24. Her tongue was coated. The heart, liver, lungs, and spleen were found to be normal. The abdomen was pendulous and flabby, and there was dulness over the right iliac fossa and also tenderness and resistance. On vaginal examination the cervix had a bilateral laceration. The uterus was retroverted. A mass the size of a small orange was felt through the right fornix, tender on palpation. The left adnexa were normal. The examination of the urine was negative. On the 8th inst. the patient was anesthetized with ether, placed in Trendelenburg's position, and an incision about five inches was made in the median line down to the peritoneum. On opening the peritoneal cavity the abdominal contents were seen covered with blood and clots and free black blood. The right tube was distended with blood, and near its Fallopian extremity a blood clot was found which was evidently the ovum which escaped from the distal end of the tube. Upon lifting up the tube another large, irregular mass was felt in the right pelvis. This proved to be a large ovarian multilocular cyst. The tube and cyst were tied off by a No. 3 catgut suture and removed. The blood and clots were then removed, the cavity wiped dry, and each layer of the abdominal cavity sewed up separately. The patient continued well, with a normal temperature, and is now, on the seventh day, doing well.

TUBERCULAR BREAST.

DR. P. F. CHAMBERS.—My first case is that of Mrs. K., 37 years old, who was admitted to my service in the Woman's Hospital February 18, 1901. She had been married eleven years; had two children; no miscarriages. She had always been healthy, and her family history was good.

About two years ago she noticed a lump in her breast, and five months later had it removed. Five weeks after the first operation she was again operated upon. From that time until six weeks before her admission to the hospital, she had had no trouble; but at that time she noticed an indurated spot in the breast, which grew rapidly and was attended with considerable pain.

The operations mentioned above had consisted simply of opening and draining two cysts.

Upon inspection the right breast was found to be enlarged and filled with a number of cysts with hard, indurated substance. Supposing it to be a case of cystocarcinoma we had to deal with, an immediate operation was advised. Two days later the

breast was removed and sent to Dr. Freeborn, the pathologist of the hospital, for examination.

The patient made an uninterrupted recovery and was discharged cured March 12.

A copy of the pathologist's report is herewith appended:

"Pathologist's Report 221.—Case of Mrs. K. Specimen, breast. Removed by Dr. Chambers February 19, 1901. Microscopic Examination: Breast riddled with tortuous sinuses filled with a cheesy material. Tubercular.—G. C. F."

A primary tubercular breast being so rare, a thorough examination was made, but no sign of tuberculosis could be discovered, nor was there in her family any history of tuberculosis.

A BOUGIE FOUND IN ABDOMINAL CAVITY FOLLOWING AN ATTEMPT AT ABORTION.

DR. P. F. CHAMBERS.—This case, I think, is one of special interest: Mrs. L., a married woman, 23 years old, was admitted to my service in the Woman's Hospital April 1, 1901. She is the mother of two children, one 4 years old and the other 18 months old. Had had no miscarriages. Menstrual history normal. Family history good.

About three months prior to her admission to the hospital she had noticed a slight enlargement in the right side of the pelvis, which increased somewhat in size and was attended with little pain. Upon examination two masses were found in the abdomen: one, about the size of a walnut, just above the pubes in front of the bladder; the other, in the right inguinal region, was the size of a hen's egg and was apparently attached to the crest of the ilium.

Mrs. L. was seen in consultation with two of the consulting surgeons connected with the hospital, and all agreed that but for the large number of leucocytes, 21,000, a positive diagnosis of osteosarcoma would be made, and an exploratory celiotomy was advised.

On Thursday, April 25, I made the median incision, thinking that I could at least get at the median tumor better by that route. Upon opening the abdomen I found the two masses firmly fixed, and extending from each mass up toward, but back of, the transverse colon, a cord-like band of what we took to be a chain of lymphatics. Determined to explore the central mass and get a specimen for examination, I cut into it, and to my surprise saw a white, glistening substance, which I caught with forceps and pulled out. This substance was a silk gum elastic bougie, No. 8. One end of it was coiled up resting against the pubis, enclosed in a mass of inflammatory tissue; the other end against the crest of the ilium. It was enclosed by inflammatory bands from the intestines, and the upper sharp angle had almost perforated the transverse colon.

The adhesions were broken up, the tract or bed opened and scraped, and in two places Lambert sutures were found necessary

to bring the surfaces of the intestines together. The abdomen was then closed by three rows of sutures and the patient put to bed. The recovery has been uneventful.

My first impression regarding the rubber tube was that it was a catheter which had been lost in the bladder and had worked its way through; but upon inspection I found it to be a bougie, and at once expressed my belief that it had been used to produce a criminal abortion. How it could have gotten into the abdomen is a mystery. The uterus was apparently healthy, and showed no signs of having been perforated. Of course such a blunt instrument could not have been pushed through the vaginal wall into Douglas' cul-de-sac. The tubes were apparently healthy; but, not suspecting at the time of the operation that an abortion had been attempted, I did not examine either of the tubes or the uterus as thoroughly as I would otherwise have done.

Since the recovery of the patient the following history has been obtained from her by Dr. Crawford, the house surgeon of the hospital:

"Mrs. L., aged 23. First menstruation at 14 years. Regular every four weeks. Last four days. Has two children, the younger 18 months old. Nursed child and did not menstruate until March, 1901.

"Last November, suspecting that she was pregnant and not wanting another child, she consulted a female abortionist in New York to learn if her suspicions were well founded. She was told they were, and consented to have an abortion produced. The abortionist placed her upon her back and inserted a round 'rubber thing,' as Mrs. L. called it, in her womb to admit air, and caused the expulsion of the fetus. No anesthetic was administered.

"After her visit to the abortionist she went home, did her washing, and while hanging the clothes out from the fire-escape she felt sharp cramps in the lower abdomen, not, however, like labor pains. She attributed the cramps to cold caught while hanging out clothes. The pain lasted till the night, but in the morning she felt quite well and did her housework as usual. The pain finally settled in the right side, where she has had it more or less ever since.

"The day following her visit to the abortionist she missed the 'rubber thing,' and, feeling afraid of possible consequences, she again went to this woman and asked her opinion as to its whereabouts. The woman told her she had probably dropped it without noticing the fact. This reassured her, and she dismissed the matter from her mind. But in the latter part of December she noticed a lump in the right side, low down. It was not particularly tender to the touch, but caused some pain. It increased in size rapidly, and the physician whose advice she sought said the trouble was a tumor, and advised its removal.

"At the time of attempted abortion nothing was ejected from the uterus—no discharge of any kind.

"Mrs. L. menstruated in March, 1901, but not since."

Among the traditions of the Woman's Hospital is the history of a very similar case occurring in the service of the late Dr. J. Marion Sims.

His patient had a mass in the right broad ligament, which could not be diagnosed, but which the doctor decided to remove by the then bold method of a vaginal incision.

In the presence of a number of members of the International Medical Association, then in session in New York, the doctor made the incision in the vault of the vagina, passed in his finger, and, feeling a hard, metallic substance, grasped it with a pair of forceps and extracted a *silver female catheter*.

About twenty years ago a woman came to Dr. T. G. Thomas and told him that ten days before she had attempted to produce an abortion at her home in Indiana by passing the steel rib of an umbrella into the cavity of the uterus (as she had done before), but that after passing it far up it had suddenly slipped from her fingers as though it had been grasped from above and pulled out of reach. Dr. Thomas could not feel the steel, but as she repeatedly assured him of the truth of her statement, he consented to operate.

The husband of the woman, however, protested, saying that he did not believe such a "cock-and-bull story," and that if death resulted he would hold the doctor responsible. Of course the operation was not performed.

That night the patient began to show pneumonic symptoms, and two days later was dead.

At the postmortem examination a steel umbrella rib, thirteen inches long, was found in the abdomen, one end having perforated the diaphragm and extended two inches into the lung tissue.

I do not doubt there are a number of cases analogous to those mentioned within the knowledge of the profession, but I have thought these cases of Dr. Sims and Dr. Thomas of sufficient interest to report them again in connection with my own.

PROLAPSUS VAGINAE ET UTERI FOLLOWING VENTROFIXATION OF THE UTERUS.

DR. ANDREW F. CURRIER.—The following case is reported not only because of its intrinsic interest and peculiarities, but because of its bearing upon the form of operation which has been much in vogue in recent years.

Mrs. M., aged 54 years, was seen by me at the Ossining Hospital, Sing Sing, N. Y., March 14, 1901. She was tall and very thin and anemic. She had passed the menopause five years previously, and complained of great difficulty in walking, also in relieving her bladder and rectum. Upon examination her vagina was found entirely everted, the tumor exterior to the body containing the uterus, bladder, and rectum. On the posterior vaginal wall, extending backward from the os uteri, was a deep circular

ulcer of the diameter of half a dollar. There were also erosions on various other portions of the vaginal mucous membrane.

I resolved to remove the uterus and restore the vagina and other organs to their proper position. The vagina was separated from the uterus by a circular incision with the Paquelin cautery knife behind the area of ulceration. The bladder and rectum were dissected away from their vaginal attachment, and the uterine arteries and veins were isolated, ligated, and cut. The peritoneal cavity was opened anteriorly and posteriorly. The uterus was then pulled downward and with two fingers in the posterior peritoneal opening I endeavored to locate the fundus uteri. This I was unable to do. A sound was then introduced into the uterus. It passed about an inch, met an obstruction which it passed with slight resistance, and then passed eighteen inches from the os uteri before firm resistance was encountered. Fearing that the uterus had been perforated, I examined the abdominal wall and observed that it yielded whenever traction was made upon the uterus. Closer examination revealed a linear scar in the median line of the abdomen, and inquiry elicited the fact that the uterus had been attached to the abdominal wall at the Woman's Hospital nine years ago. The uterus was removed three inches from the os uteri, a ligature being carried through either half of the lower extremity of the stump. A purse-string suture was then carried around the edge of the vaginal wound, drawn together, and its ends passed through the stump of the uterus and tied. A plastic operation was then performed upon the posterior vaginal wall, its calibre being thus greatly narrowed, and the vagina pushed back into the pelvis. As the stump of the uterus retracted, the vagina was drawn back also, and it was hoped that this retraction, with the narrowing of the vaginal wall, would effect the desired cure. Such a condition, resulting from ventral fixation, is to me unique. In conversation with Dr. Edebohls, he informed me that he had seen three such cases. If, therefore, it is possible that the uterus after such an operation should be capable of distension to such an extreme degree, it becomes pertinent to inquire whether some of the other forms of operation might not be preferable to this in cases in which it is sought to remedy a dislocated condition of the uterus. The mere fact that ventral fixation of the uterus may not prevent the prolapse of the vagina, rectum, and bladder ought to be taken into consideration in weighing the advantages and disadvantages of the different methods of operation upon the dislocated organ.

DR. ROBERT L. DICKINSON, of Brooklyn, read a paper on
TWO VENTRAL FIXATIONS, ONE ENDING IN RUPTURE AND ONE IN
CESAREAN SECTION.¹

DR. PAUL F. MUNDÉ.—The first case was, I believe, operated upon by me two years ago, and therefore I will describe the operation. The patient was 23 years old and the mother of three

¹See original article, p. 24, July JOURNAL.

children. She had a complete prolapse. I did an operation that was rather unusual for me, making a broad denudation on each lateral wall and another on the posterior vaginal wall from cervix to vaginal orifice. I did this latter because there was a large ulceration which I did not wish to leave. I closed the denudations with sutures, tying them as I went along, and replacing, at the same time, the vagina and the uterus. The perineum was closed as high as possible. The abdomen was then opened for the purpose of performing uterine suspension. I placed three silk sutures, one at the fundus uteri, the second just below the Fallopian tube, and the third on a level with the round ligaments. I also shortened the round ligaments by doubling them upon themselves and stitching them together with chromic catgut sutures. The patient made a good recovery and was discharged from the hospital with the uterus and vagina in absolutely normal position. It was this case, reported in the Transactions of the Woman's Hospital Society in May two years ago, that brought forth an editorial in a well-known journal, whose editor is well-known to many of you, in which I was severely criticised because I claimed that no operation for prolapsus uteri had yet been devised or invented which restored the parts to an absolutely normal position, so that if the woman gave birth to children these organs would remain in a normal position afterward. I made that statement then and I repeat it now. The report of Dr. Dickinson's confirms that view. Several months ago Dr. Dickinson sent me a report of the conclusions of the case, so I looked it up and found the facts as stated. I have seen but one other case of pregnancy after ventral suspension for retroflexion, where the woman went to the fifth month, when intermittent uterine contractions occurred and she miscarried. I do not favor ventral suspension or fixation for backward or downward dislocations. The case that Dr. Dickinson reports is the first one of the kind in my experience in which a serious accident occurred from subsequent confinement, but I doubt very much if in the future I shall not continue to perform the operation which has done me good service for years, *i. e.*, the Alexander operation, which I have done in over three hundred women, and in whom I have seen many a pregnancy and normal confinement occur with the uterus remaining in a normal position: for this reason and its almost perfect safety I prefer the Alexander operation to any other method of suspending the movable retro-displaced uterus when the appendages are normal.

DR. E. H. GRANDIN.—I was not present at the last meeting of the society when the paper now under discussion was read, and therefore I can hardly discuss it. I should like to ask, before beginning, however, whether the trend of the paper was against suspension of the uterus.

DR. H. J. BOLDT.—Yes.

DR. E. H. GRANDIN.—As I have before remarked, I find it difficult to keep track of my clinical material, and for that reason I never have been in a position to give statistics of much value. It

so happens that I have performed suspension of the uterus more frequently in hospital work, amidst the pauper material, than in private practice. When I say that possibly the cases will cover fully one hundred I am not falling far short in my statement. I have, however, been able to hear of but four cases. Two of these I am unable to vouch for, for the reason that, whilst I heard that they conceived, I have received no data as to the course of the pregnancy. The two other cases I can report upon.

First, as to the technique which I have employed. It has always seemed to me that where a fixation or a suspension was done and the sutures were passed posterior to the fundus of the uterus, these women, if they became pregnant, would have their pregnancy interfered with, and, if they went to full term, would have their deliveries made difficult, because the uterus is placed in an exaggerated position of ante flexion. I have never suspended after that fashion. In my hands the suture passes through the parietal peritoneum, through the body of the uterus anterior to the fundus, and thence through the parietal peritoneum: I use two or more catgut sutures. What I aim at is to secure a suspensory ligament of parietal peritoneum whereby the uterus may undergo normal movements, and, in the event of pregnancy ensuing, the anterior position not being exaggerated. I have never seen why the uterus would not rise and develop as it should normally and pregnancy progress to term and no difficulty ensue in delivery. This method of suspension of the uterus, by lifting the uterus to a higher level and maintaining it there, relieves congestion or varicosities of the broad ligaments, which are necessarily present when the uterus has been retroflexed for years.

Of the two cases which I can speak of, one was an instance of total prolapsus in a young woman of 22 or 23 years of age: she was referred to me seven or eight years ago by the late Dr. J. Lewis Smith. The uterus was between the woman's thighs, the pelvic floor was lacerated, the rent running down to the entrance of the sphincter. There was also prolapse of the bladder and the rectum. I amputated the cervix, did suspension of the uterus by the method described, and then did a high Hegar operation on the posterior wall of the vagina. Convalescence was normal. She was urged not to conceive for eighteen months, but the advice was not heeded. She conceived within seven months after the operation. Dr. Hazen delivered her without difficulty. The uterus, however, fell back in the hollow of the sacrum.

The second case was operated upon within two years at the Columbus Hospital. The pelvic floor and cervix were restored and the uterus suspended by the method described: also, some plastic pelvic work was done on the right ovary. She was delivered by Dr. E. P. Mallett, without difficulty, and he informs me that the uterus, after involution, remained in position.

The above are the two cases that I have been able to trace. Of

the instances where I have operated in private practice I do not know of one that has conceived.

My experience has been a little different from that of Dr. Dickinson, possibly because of a different method of suturing. At any rate, I make a point that where the uterus is suspended it should be by the anterior wall of the uterus and not by the posterior.

DR. JOSEPH E. JANVRIN.—Like Dr. Grandin, I usually use two sutures inserted into the anterior wall of the uterus on a level with the beginning of the Fallopian tubes. The sutures are of strong catgut, No. 7 or 8, and the surface of the uterus is denuded for about half an inch square and then brought up into apposition with the abdominal wall. The results have been excellent. As far as any subsequent troubles connected with pregnancy are concerned I know nothing; for, being practically out of obstetrical work, I have not followed up these cases with that particular end in view.

DR. E. B. CRAGIN.—I think that we all ought to realize that the real indication for ventral fixation or suspension is ordinarily associated with some disease of the appendages, and, therefore, not as likely to be followed by pregnancy as are the cases in which the Alexander operation is indicated. One of the advantages of the Sloane service is to be able to see the obstetrical side of gynecological operations. I confess, too, that I have seen there the obstetrical side of some of my own cases, which has set me thinking. We have had good and bad results in ventral suspension or fixation (I think we should carefully distinguish between these two). My first Cesarean section at the Sloane was on account of a ventral fixation which had been done in another city, where the union was not a primary one. The fixation was very firm, with a broad cicatrix, suppuration having occurred at the time of operation. This patient presented herself at the hospital with a tumor formed by the anterior uterine wall, as has been described by German and our own writers. The tumor was such that the canal was entirely blocked and there was no alternative but to do a Cesarean section.

On the other hand, there are many who have gone through parturition with but little difficulty from the ventral suspension. I remember one case distinctly where trouble did arise. This happened in a woman whom we never suspected would become pregnant; she had a prolapse of the uterus. The cervix had been amputated and the pelvic floor repaired in addition to the ventral suspension. The woman did well, but the child was lost, on account of tedious labor the result of the rigidity of the cervix. On the other hand, several patients have gone through without any trouble whatever. So I think we should divide the cases into ventral fixation and ventral suspension. Those that are suspended seem to give but little trouble. I think, however, that it will be admitted that some of these uteri, after delivery, will return to the displacement that existed before the operation,

on account of the stretching of the ligaments. So far as dystocia is concerned, little difficulty will arise from a ventral suspension.

DR. A. PALMER DUDLEY.—I do not intend to say much because I did not hear the paper read at the last meeting of the society. Nevertheless the subject appeals to my sympathy, because I have had a little experience with the operation. I want to say this: That I do not believe in ventral fixation at all; my experience bears me out in this statement. I do not believe in ventral suspension done in such a manner that it will interfere with Nature. I never use a buried suture. I have had now quite a number of cases of ventral suspension which have become pregnant and they have carried to full term without any trouble. Dr. Ward, my assistant, knows of some of these. I have now a patient pregnant the second time; she is five months pregnant and she has not had the slightest trouble. I suspended her uterus before she was married and delivered her of a ten-pound child without any trouble.

The point I wish to make is that Nature never intended the uterus should be fixed; therefore I never fix it. Nature did intend that it should be supported; therefore I support it. I never use the buried suture, and there is where a great many men make their mistake. The buried suture becomes an irritant when traction is made upon it. Therefore I suspend the uterus in this manner: I use two sutures, passing them through the fundus of the uterus, scarifying the organ between the two sutures, and I close the abdominal wound with the same sutures. In two and a half weeks I take out the sutures and Nature does the rest in forming a ligament. There is then no irritant left. The patient gets up; Nature suspends the uterus, forming its own ligament from the abdominal peritoneum. If the patient becomes pregnant, the uterus lifts and the abdomen distends at the same time, and therefore there is no traction upon the suspension.

In discussing the mechanics of pregnancy it was remarked that as the uterus lifts from the pelvis the abdomen descends. Therefore there is no traction upon the fundus of the organ. The uterus lifts to the navel, the navel lifts and the abdomen descends, and therefore an equilibrium is established between the two. The uterus *can* carry without rupturing this ligament, and the uterus *can* return to its proper position after delivery. The mistake made in this whole procedure is to place in buried sutures that cannot stretch or accommodate themselves to Nature. I have had case after case where suspension of the uterus was done and the patients have carried without difficulty. One of the nurses at the Post-Graduate Hospital is one. She afterward married and became the happy mother of a beautiful child. These cases must be looked at from a mechanical standpoint and not from the surgeon's. Therefore the man who wants to make an effective fixation makes a mistake. The man who makes a ventral suspension with movable sutures will get good results,

and the woman will deliver and not have a return to the former displacement.

DR. GEORGE W. JARMAN.—Unfortunately I did not have the pleasure of hearing the paper read at the last meeting. However, I have had three cases illustrating the condition referred to; in these cases I have performed ventrofixation. One of these I have since confined twice, and the other two each of one child, and in none of these has the confinement been abnormal.

I desire also to say a word in regard to the difference between ventrofixation and suspension of the uterus. It has seemed to me that where the adhesions between the abdominal wall and the fundus of the uterus were so dense that the uterus remained in close apposition to it, it is these cases only that we can regard as ventrofixation. Should, however, the adhesions be of such a character that they would afterward permit of stretching, the term ventrosuspension should be given. It has also struck me that some of the gentlemen present have argued from an erroneous standpoint when they claim that we will get a different union if the sutures are passed only through the peritoneum than if they are passed through the entire abdominal wall. As a matter of fact, the uterus can become adherent to nothing except the peritoneum, unless the peritoneum is held apart by sutures.

Dr. Grandin claims that he only passes the suture through the peritoneum and then through the uterus and in this way produces a so-called ventrosuspension. It must be apparent to any one that he obtained the same union as if he had passed his suture through the entire thickness of the abdominal wall.

Dr. Dudley claims that in using a non-absorbable suture and removing it at the end of three weeks he lessens the amount of irritation, hence limits the extent of the adhesion. As a matter of fact, if he used an absorbable suture which would last the same length of time, he would not only have less irritation, but would also greatly lessen his possibilities of infection. For this reason it seems to me he is laying undue stress upon his method of operation.

I have undergone a distinct change in regard to my method of performing this operation. Formerly I used black silk, passing the ligature through the fascia muscle and peritoneum and into the uterus at its fundus. During the past five years I have used nothing but rather heavy catgut; and instead of placing the sutures through the fundus, I now pass them through the round ligaments about one-half an inch from their uterine attachments. I have had no reason to regret this method of procedure. On two occasions I have had the opportunity to see the results of the operation, being compelled to open the abdomen the second time. In both of these I have found the uterus suspended by two bands of adhesions about one inch long, the uterus capable of free mobility.

DR. B. H. WELLS.—I have had eight cases of pregnancy fol-

lowing suspension of the fundus of the uterus to the abdominal wall. Two of these occurred in private practice. The first case has had since the operation three children, and all the pregnancies and labors were perfectly normal and the uterus remains in a normal position. The second private case was done two and a half years ago, and early last summer she bore a child after a normal pregnancy with a normal labor. I saw her again day before yesterday and I found that the uterus had dropped back. The other six cases occurred in patients who had been operated upon at the Polyclinic Hospital, the abdomen being opened for inflammatory conditions. Out of these six I have examined four since their labors. In two the uterus has dropped back and in the other two it remains in normal position.

DR. MALCOLM MCLEAN.—I have two cases to add and in both the method was that described by Dr. Dudley. The method that I have always followed has been to make a small incision, as small as possible, bringing the uterus up and chafing the peritoneum on the anterior part of the fundus, and then placing two sutures of silkworm gut through all the parietes, so making them closing sutures as well, removing the sutures at end of second week. In one case I followed Dr. Kelly's method of suspension from the posterior wall, and, although there were no ill results (pregnancy did not follow nor other ill results), I abandoned it. The sutures I remove at the end of two weeks, and then I find a suspended uterus as the result of a fixation operation. The uterus is suspended by ligaments, artificial ligaments, produced by this method of operating.

I think we should clearly define between an artificial condition of suspension of the uterus and a natural condition of suspension of the uterus from a fixation position.

In two cases, there was difficulty but in one. In this case the band was very large, covering a larger surface than was necessary, and the patient complained from the sixth month up to nearly full term of abdominal pain. That is the only case where I have seen this. The delivery was normal and everything is in fair condition now.

DR. R. A. MURRAY.—I have had two cases in which ventro-suspension had been done who became pregnant. One of these cases I delivered twice; the first labor was normal, with a dead child at about the eighth month: the child had been dead about four days before labor supervened. The second labor was again normal, no symptoms occurring during the pregnancy or labor due to the fixation of the womb; the child was dead before labor from other causes. The uterus did not change from the normal position after labor. In the other case I did not do the suspension, but neither in pregnancy nor labor were there any symptoms due to the suspension: the labor was normal, the child alive, and no retroversion resulted after delivery.

The suspensions of the uterus which I have done have been performed by attaching the anterior wall of the uterus just be-

low the fundus, on a level with the round ligaments, by sterile catgut sutures to the anterior peritoneal wall of the abdomen; as the catgut sutures are soon absorbed, there is usually a peritoneal band left, which gives so that no interference could occur in labor.

DR. H. N. VINEBERG.—I have to report one case of pregnancy following ventral suspension done according to the method of Dr. Dudley, passing the suture through the anterior wall of the fundus of the uterus and through the whole thickness of the abdominal wall, closing the wound with the same sutures, which are then removed at the end of twelve days. The patient had considerable trouble during the first six months of pregnancy, especially during the third and fourth; after the sixth month these symptoms subsided. At full term she developed a nephritis which had nothing to do with the suspension. At full term she was delivered normally and made a good recovery.

Some years ago I was particularly interested in this subject and I looked up the literature on it. At that time all the cases in which difficulty occurred were those that had been operated upon according to the technique of the Leopold-Czerny method as described by Dr. Dudley to-night. The dystocia in those cases amounted to 11 per cent, and in some of the cases it was so severe as to require Cesarean section.

I quite agree with what Dr. Jarman said on the subject. I see no difference between a suture through the peritoneum and uterine tissue, if we use an absorbable suture which will absorb in a short space of time, from a suture which goes through the whole abdominal wall and is removed at the end of twelve days. The method of Olshausen is one that so far has given no trouble during pregnancy. A number of patients operated upon by this method have been reported in which no trouble followed. This is the method that I prefer when operating through the abdominal wall, that is, to suture the round ligament to the abdominal wall, passing the suture through one side, carrying it through fascia and muscle on the same side. Whenever a suture is used through the uterus, you can never tell the amount of adhesions which may obtain, no matter how careful we are, and dystocia may result. In the case Dr. Dickinson described, that had such difficulty, that case was operated upon according to the technique described by Dr. Dudley, the sutures being passed through the anterior wall of the uterus, and these sutures were removed at the end of ten or twelve days.

DR. G. L. BRODHEAD.—I can recall one case of rupture of the uterus in a patient upon whom the operation of ventral fixation had been performed some time before. The patient was brought in an ambulance to the Sloane Maternity Hospital some four years ago, during my service as resident physician. No presenting part could be made out; the cervix could not be determined. There was a thick mass, of the size of an orange, just behind and slightly above the symphysis, which partly filled the

pelvic brim. Later on this was found to be the thickened anterior wall and fundus of the uterus. Dr. Tucker, the attending physician, was sent for, and upon his arrival the conditions had so changed that, upon examination of the patient, he thought he had to deal with a placenta previa and a face presentation. The uterus had in all probability ruptured before the patient was brought into the hospital, and during the interval the placenta had slipped down to the brim and the face presented. Dr. Tucker did a podalic version and then extracted the placenta, after which he found that the uterus was ruptured, his hand passing up into the abdominal cavity. The patient was at once taken to Roosevelt Hospital, where the abdomen was opened. The posterior portion of the fundus of the uterus was found to be firmly fixed to the abdominal wall. The thin posterior wall of the uterus became thinned and then ruptured; whether the rupture of the uterus had occurred simply as the result of the thinning of the posterior wall, or whether it resulted mainly from protracted labor, I do not know. After the operation the woman did well for a number of days, then suddenly died, the cause of death being somewhat obscure.

DR. J. L. MORRILL.—I have in mind a case of a woman who had a fixation performed upon her and who was attended by a gentleman up town. Labor set in, but as no progress was made a friend of mine was called in consultation. He advised that she be sent to a hospital because he was acquainted with her condition. This the gentleman in charge refused to do, so the woman was allowed to remain in labor twenty-four hours longer, when her condition became so bad that my friend was again called in. He came and then sent her to the Sloane Maternity Hospital. She was allowed to remain in labor so long because the attendant, being unable to reach the cervix uteri, failed to appreciate the gravity of the case.

DR. A. PALMER DUDLEY.—The President has raised the question between suspension and fixation. Let us understand each other. A fixation must imprison the uterus. Practically this can be done only by a buried suture. A suspension holds the uterus in position anterior to the perpendicular line of the body and allows of motion. Regarding Dr. Crayin's using the round ligaments, why use two when one is sufficient? I claim this: That any man who uses a buried suture makes a fixation; that any man who uses a temporary suture makes a suspension. Why? Because the peritoneum is movable and accommodates itself and makes the ligament. I never imprison the anterior wall of the uterus; that would bring the uterus from its normal plane. I use that part of the uterus between the two tubes, in a line between them. Two sutures are there introduced; the uterus is lifted in such a manner that the fundus adheres to the peritoneum. I cannot see why it is necessary to use two round ligaments when one will do. The suspension by two round ligaments makes two places for obstruction of the intestines to occur. One suspension by one good ligament is enough.

DR. E. B. CRAGIN.—I should like to add a word to what I have already said. We all admit that, however we suture the uterus, the majority of these ligaments resulting from the attachment stretch and so make the uterus more or less movable. Those that stretch and allow the uterus to become freely movable will give us little if any trouble in the event of pregnancy. Those that are firmly fixed, if the fixation is low down on the anterior wall, will probably give but little trouble. On the other hand, those that are firmly fixed, if high up on the fundus, especially if posterior to the centre of the fundus, are apt to give trouble for the reason that the only part of the uterus which distends to accommodate the fetus is that above and behind the point of suture. The uterine wall below the point of suture tends to thicken. If the fixation is low down on the anterior wall, distension will occur above that part and be sufficient. Hence, in general, if the uterus remains in fixation and pregnancy occurs, you have thickening of the anterior wall and thinning of the posterior wall, the danger being, in the first, from obstruction; from the second, rupture of the posterior wall.

In regard to what Dr. Murray has stated about Cesarean section and not resorting to that operation, I wish to say that in the case of my own, already referred to, it was the only thing to do if mother and child were to be saved, as the parturient canal was completely obstructed by the tumor formed by the anterior uterine wall. That there is danger in not performing the operation early in these cases is proved by the case reported by Dr. Brodhead where rupture of the posterior uterine wall occurred. In these cases with the posterior uterine wall thinned and the anterior uterine wall thickened and blocking the parturient canal, there is great danger of uterine rupture unless the child is removed early by Cesarean section.

DR. R. A. MURRAY.—I think that the sutures were introduced in the posterior wall of the fundus in the cases where the anterior wall formed the obstacle to labor. The uterus at term being by this means strongly anteverted, the force of the uterine contractions propelled the uterine contents against the thinned posterior wall of the uterus.

In a case of prolonged labor, as the one just cited, rupture might occur by the pressure of the posterior wall of the uterus on the promontory of the sacrum. The axis of the uterus was not allowed by the fixation to become the axis of the superior strait of the pelvis; the cervix did not dilate because the child's head could not enter the pelvis; and finally rupture of the posterior wall of the uterus ensued—this, I believe, was the cause of rupture in Dr. Morrill's case.

If the pelvis is not deformed, as the point of fixation of the uterus is above the superior strait, there should be no interference with the entrance of the head of the child into the pelvis, and Cesarean section should not be necessary, except in neglected cases where no endeavor had been made to make the axis of the uterus the axis of the superior strait.

TRANSACTIONS OF THE WOMAN'S HOSPITAL SOCIETY.

Meeting of May 24, 1901.

JOSEPH E. JANVRIN, M.D., *in the Chair.*

A NEW METHOD OF NEPHRORRHAPHY.

DR. P. F. CHAMBERS.—Although I have not been able to learn of any practical objections to the method in vogue of fixing the kidney by needle and suture passed through the cortex, theoretically I have always been opposed to it, and I feel assured that, sooner or later, maybe in years, cases will appear showing that an injury had been done to the kidney by that method. Only a few years ago it was thought perfectly safe to leave a permanent suture, such as silkworm gut or silver, buried, fastening the kidney to the muscles of the back. Permanent sutures have proved to be a fallacy. Neither can I see the advisability of leaving the wound open, for, after all, it is simply the surface of the kidney which adheres, and it is held no more firmly whether the surface to which it is adherent be granulation tissue two inches thick or merely the adhesion which would take place between two raw surfaces. Dr. Senn had evidently the same idea that I have, that the object is to simply hold the kidney in place until adhesions have taken place. In fact, that is the only object to be attained by the suture through the kidney. Dr. Senn's method of suspending the kidney by gauze, which he removes in a few days, necessitates the wound being left open, and this subjects the patient to the danger of infection and, at best, a wound requiring weeks to heal.

While I fully recognize that two cases do not establish a good surgical precedent, still my success in the two cases I wish to report has been so marked that I think the method fully worthy of being described. My cases were two unmarried women who were admitted to my service in the Woman's Hospital with markedly displaced, or floating, right kidneys and with all of the symptoms attending such trouble. An operation for fixation was advised in each case and performed according to the following method:

The patient was placed in the usual position upon her side and abdomen. The vertical incision was made and the kidney was caught with the fingers and partly pulled through the opening. Then, with the forefinger and thumb of the left hand as a guide, a bunch of medium-sized catgut was carried around the kidney by a Cleveland ligature carrier just below the pelvis, between the kidney and the ureter. Then, with the same carrier,

these ligatures were passed through the muscular fibres or aponeurosis in the upper edge of the wound.

A vertical incision two inches in length was then made through the capsule over the external border of the kidney, and the capsule was peeled back about half an inch on each side of the incision. With fine catgut the capsule was retracted and fixed to the under surface of the muscle. The bunch of catgut ligatures was then drawn up and tied so that the bared surface of the kidney was held in firm apposition to the under surface of the muscle to which we wish it to adhere. Any muscular fibres which have been torn and the fascia were each brought together with running sutures of catgut. The wound was then thoroughly washed out with a normal salt solution and closed with catgut. The patient was put to bed on her back, and the foot of the bed was slightly raised. She was kept in that position for at least two weeks. By that time the catgut had been absorbed. She was gradually allowed to assume the sitting posture, and at the expiration of three weeks she was allowed to leave her bed. But before allowing her to assume the upright position a snug-fitting abdominal supporter was adjusted, and she was directed to so adjust it, before leaving the bed, for at least a year. No apparent injury was done to the kidney. The operation was attended with but little inconvenience to the patient. The wound healed promptly and with primary union. There was comparatively no fever during convalescence, no interference with the kidney function, no evidence of kidney inflammation in the urine, and thus far there has been no return of the distressing symptoms for which the operation was performed, and the kidney remains in its normal position.

DR. GEORGE H. MALLETT.—The question of floating or movable kidney interests me very much. I have not settled my mind as to the value of the operation as a means of relief. A good many men have stated that 20 per cent of all the cases that apply for gynecological treatment are cases of floating kidney. I have not been able to verify that statement. It seems to me that that is a very high proportion. Others have claimed that all women less than 120 pounds in weight should be examined for floating kidney. They attribute any number of nervous and digestive disturbances to floating kidney. It seems to me that cases of floating kidney, those that are really floating and not only movable, are the only ones I should be inclined to operate upon. I have had experience in a few cases, but as yet marked cases have not come to my attention. I remember one which seemed a typical case for operation. The kidney wandered down to midway between the umbilicus and the anterior superior spine of the ilium, about where the appendix should be. I fastened the kidney in position, doing it by the regular method, vertical incision (slanting a little), and used

catgut, passing it through the kidney tissue itself. Before operation she complained of excessive nervousness, a dragging-down feeling on the right side, digestive disturbances, and, so far as could be made out, all the symptoms of a movable or floating kidney. I examined this patient carefully, but found no gynecological lesion to account for her troubles. I examined for a diseased appendix, but found none. So, by exclusion, I considered the floating kidney the source of her symptoms. Five or six months after operation, when I thought it was about time that she should feel in good condition, she complained of the same pain as before. This rather discouraged me. Since that time I have operated twice and taken care of about one dozen. I am collecting the after-histories of some of these cases, but I have not been able to follow up many of them. I had an interesting experience last month. I was called one night to see a case which was thought to be one of appendicitis. This woman complained of pain in her side, and she was very nervous, so much so that we could not tell by palpation where her trouble really was. We obtained a history that she had a floating kidney, which had been anchored during the latter part of February. Since the operation she had felt well except for some pain, and she felt something protruding below her ribs, which the doctor had told her was her liver. When seen her temperature was 103° , her pulse 120. I concluded that her trouble was in her kidney, so I operated the next day and found at least one pint of foul-smelling urine in her kidney. This was drained and her temperature went down and the other symptoms improved. To-day she is well, with the exception of having a tube in her kidney. What to do with her next is a problem. I want to catheterize her ureter to see if there is any kink present. No stone was found in the pelvis of the kidney. If I could catheterize the ureter and keep it open, I then would allow the opening in the kidney to close.

I do not think the kidney tissue should be transfixed, if it could be avoided, in suspending that organ. I have heard of cases of renal fistulæ resulting when it was the fashion to use silkworm gut.

DR. CHAMBERS.—With the finger in the incision, passing it around the kidney, feeling that the ureters and blood vessels were out of the way, all outside of the proposed line of suturing, the sutures were then passed around the kidney, hugging it closely, outside its capsule, between it and the ureter. The sutures penetrated into the fatty and cellular tissue. When the sutures were tied they were tied higher up than the level of the plane of the kidney, so as to keep the kidney pushed up underneath the ribs. Dr. Senn's method was similar to this, but he used gauze which was passed around the kidney. The wound was left open and the gauze removed at the expiration of three or five days; of course, in such an instance, the wound had to heal by granulation.

When the capsule is pulled back it is sewn to the under surface of the muscle and so attached by its raw surface, and that is the only part of the kidney that becomes adherent. Even when you penetrate the kidney with a needle armed with silkworm gut, with catgut or other material, the object simply is to hold it there until adhesions take place, when the sutures are withdrawn. My sutures, which suspend the kidney in position, last fully as long as those sutures which penetrate the kidney tissue itself. I have never seen any injury, nor do I know of any case where any injury has been done the kidney by the old method, but theoretically I have always been opposed to it. I do not think we can pass a ligature through the kidney without injuring it. I think the method described of holding it in place does equally as well, and is a better procedure than when the kidney tissue is penetrated.

A CASE OF UTERO-INTESTINAL FISTULA.

DR. L. GRANT BALDWIN.—I wish to report the case of a utero-intestinal fistula on account of its rarity and the results obtained. This occurred in a woman, about 37 years old, who was confined in April, 1900. About the third day after her confinement she became septic and was then curetted by her family physician, who was a most competent obstetrician. Nothing untoward happened and the symptoms of sepsis disappeared. At the end of the tenth day after the curetting fecal matter was noticed coming through her vagina. At the end of two weeks after the curetting I was asked to see her. At that time she had a temperature of 101°, pulse 120, foul tongue, and she looked rather wretched. The doctor had told me that fecal matter had appeared through her uterus, but I was inclined to be rather sceptical, thinking that the fistula was in the vagina. By placing the patient in the Sims position and thoroughly exposing the parts, fecal matter could be seen oozing out of the cervix. Her bowels had not moved by way of the rectum for several days. Intestinal gas passed through the uterus. The question as to what was best to do for her arose and seemed quite a problem. There was a mass, one-half the size of a fetal head, in the left iliac fossa immediately connected with the cul-de-sac. There being no inflammatory material present and the patient being in fairly good condition, it was thought advisable to wait and keep the uterus and vagina as clean as we could. The fever and pulse began to get less, her appetite improved, and at the end of two weeks some little gas passed by way of the rectum. She gradually improved, and in the early part of June went to the country. About the middle of July I was told that fecal matter had not passed by way of the vagina for several days. She gained in flesh and her condition became most satisfactory. When she returned from the country, about the middle of September, she had gained twenty pounds of flesh and was the picture of health. Except for a little thickening

back of the uterus on the right side, she was a perfectly well woman, and had menstruated for two months normally, a nominal amount and without any pain.

The question as to how this condition occurred and how it healed up is an interesting one to me, and my opinion is one of speculation. Probably the uterine wall was injured at the time she was curetted and a localized peritonitis occurred, with adhesions of the bowel to the sigmoid flexure, because by rectal examination nothing could be felt. It must have occurred low down, because the fecal matter was not the contents of the small intestine; the food was thoroughly digested and resembled the products of digestion. As the uterus contracted, as involution went on, the sigmoid remaining stationary, the opening was stretched out into a canal; and as involution took place the uterus dropped further and further in the pelvis, the canal still more stretched and finally became obliterated in that way. That is the most probable way in which healing occurred that I can imagine.

DR. DOUGAL BISSELL.—I should like to ask Dr. Baldwin if she had ever had a laceration and if it was an instrumental delivery.

DR. BALDWIN.—There was an old laceration of the perineum and cervix, but it was not marked. There were no symptoms of rupture of the uterus present whatever. The labor was a normal one. The curettement was done for the sepsis.

DR. P. F. CHAMBERS.—I should like to ask if a sharp or a dull curette was used, because I think the sharp curette a most dangerous instrument. After parturition I have made it a rule never to use it. I have seen a number of cases where I have been satisfied that injury has been done by the sharp curette. The sharp curette cuts in soft tissue and leaves a number of raw surfaces for the absorption of septic material. The dull curette will do everything that the sharp one does, and does no harm.

DR. JOSEPH E. JANVRIN.—I agree with the remarks made by Dr. Chambers. I do not think one should ever use the sharp curette after confinement. Personally, I never use it, but always the dull curette, using a good big one which is large enough to catch hold of anything contained within the uterine cavity and pull it down. The instrument that I like is called Mundé's, which is very light, but larger than the Thomas curette. Any case where the uterus is subinvolted and with the cavity quite large requires a good-sized blunt instrument to get hold of and pull down any material within that organ.

DR. BALDWIN.—I should like to ask if any gentleman present has ever seen a similar case and what he thinks was the method of closure of opening.

DR. LEWIS G. LANGSTAFF.—I regard Dr. Baldwin's theory of the cause and closure of the fistula as correct. I think that the absorption of the exudate allowed the uterus to contract at the fistulous opening. Similarly, the bowel would be released from constriction.

DR. JANVRIN.—I should like to ask Dr. Baldwin whether he thought that while the fistula existed an exudate was surrounding it, so that sufficient time in all probability was given to form an encasement around that point and approximate the intestine to the uterus.

DR. BALDWIN.—I feel pretty sure that the tract of the cavity was walled in. There were absolutely no symptoms of general peritoneal infection whatever. It seems to me that it must have been entirely shut off.

DR. S. SHALER.—I would suggest as a cause of the fistula that perhaps it was due to the gut passing into the cavity of the uterus through an opening made by the curette, the pressure externally pushing the bowel in. The adhesion formed between the bowel and uterus was so firm that the feces did not get outside the uterus into the peritoneal cavity, so accounting for the non-appearance of peritonitis.

DR. BALDWIN.—I think it is impossible to drag the descending colon or the rectum through an opening in the uterus. Yet it was evident that the fecal matter passed was the contents of the large intestine.

DR. BISSELL.—The reason I asked if laceration had been occasioned either by the use of forceps or by the passage of the child without instrumental interference, was because I thought of the possibility of the gut being adherent to some laceration of the uterus. Such an injury could have occurred and remained unnoticed. The immediate symptoms would not necessarily be alarming when the intestine unites to the point of rupture. Under these circumstances the curette, though gently used, would be apt to injure the bowel and occasion a fistula. This seems to me to be the probable explanation of the origin of the fistula.

DR. MALLET.—How long after delivery did the bowels move?

DR. BALDWIN.—The bowels moved regularly. When symptoms of sepsis occurred Epsom salt was administered. But after the evacuating there was no discharge from the uterus until the tenth day.

DR. MALLET.—Your theory is, I think, a correct one in regard to the adhesions taking place between the uterus and the large intestine after the wall of the uterus had been injured. This inflammatory exudate pressed against the rectum and prevented the passage of the feces that way.

I remember a case that I had of a woman with a pelvic abscess, a cellulitis, in which the mass was quite hard. I did a posterior section with the idea of draining the abscess. There was a large mass between the uterus and the rectum, which really obstructed the bowel so that the woman was really in bad shape, and I did not know whether to take out the uterus and tubes or to trust to drainage. I decided upon the latter course and kept her under observation. After two days the bowels did not move, but the rectum gave way and allowed fecal matter to come through my incision into the vagina. There is still a small

fistula from the intestine back through the cul-de-sac. The problem that now confronts me is how to repair that.

A CASE OF IMPERFORATE ANUS.

DR. S. SHAILER.—I have seen a case of imperforate anus in a woman of 45 years. Her rectum emptied into the lower part of her vagina. No operation has as yet been attempted. She has had this condition since birth, and she claims that it has never bothered her very much and that she has partial control of her bowels.

DR. JANVRIN.—Has any real sphincter ani been demonstrated?

DR. SHAILER.—There did not seem to be any real sphincter.

DR. JANVRIN.—Does any surgeon propose to operate?

DR. SHAILER.—A surgeon is considering an operation, but I do not know what he intends doing. I would suggest doing a high perineal operation, *i. e.*, taking two strips of tissue above the opening on each side of the vagina and closing them over, not cutting down to the sphincter, but just far enough to get the sphincter action.

DR. JANVRIN.—He has no idea of establishing a sphincter where the normal sphincter should have been? Is she married?

DR. SHAILER.—No, he has not. She is not married.

DISCUSSION OF DR. HARRISON'S CASE.

DR. GEORGE H. MALLET.—I have never heard of anesthesia producing symptoms of ileus. The symptoms that follow the administration of anesthetics have been more immediate; they have done badly soon after, the collapse following chloroform occurring within one or two hours. I have never seen a case where death occurred the next day from the influence of the anesthetic. I should be inclined to think of rupture of the uterus or injury to the contents as a cause of death in the case reported.

DR. J. DOUGAL BISSELL.—I have heard specialists in this branch of work express the opinion that chloroform in cases of premature labor should be preferred because there was less bleeding than when ether was administered. I should like to ask if that has been the experience of others here.

DR. CHAMBERS.—A short time ago I saw a case in consultation very similar to the one described. She had ileus, nausea, vomiting black blood. She went into a state of collapse and nothing could be done for her and she died. This was a case following confinement, and she died within thirty-six hours. She had no rupture. The uterus was contracted down firmly and no instruments were used.

DR. JANVRIN.—Was the anesthesia prolonged in this case?

DR. CHAMBERS.—She had not been under the influence of chloroform for a very long time, but she was in labor for twelve hours, and the chloroform was used a good part of the twelve hours, but not to produce profound anesthesia until at the birth of the child.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Eclampsia.—An interesting summary of his work upon this subject, and the theory of its etiology which he has deduced, is published by A. Dienst.¹³ He found the same pathological lesions in the organs of mothers and children and the same changes in their blood and urine. The fundamental cause of eclampsia is insufficient action of the maternal excretory organs, kidneys and liver, due to inadequate renal or cardiac activity. The retention of fetal excrementitious material results in blood changes in both mother and fetus, shown first by an increase of the fibrin elements in the maternal circulation. This leads to multiple thrombosis and secondary tissue degeneration, involving first the liver and kidney, which are attempting to excrete the excess of toxic substances. If the maternal circulatory disturbance begins suddenly the numerous anastomoses in the liver permit a greater flow of blood through this organ than through the kidney, resulting in tissue changes in the liver. Consequently, the incomplete katabolic products from the liver entering the circulation more rapidly than they are excreted through the kidney, accumulate in the circulation in addition to the fetal excretions. With sudden onset eclampsia may thus occur before degenerative changes have occurred in the kidneys. In these cases there is no albuminuria and autopsy shows quite or nearly normal kidneys. If the onset is gradual or the sudden attack is protracted, the kidneys also become affected by the toxins and albuminuria is present. If the altered condition of the maternal blood is more than temporary, the composition of the fetal is correspondingly changed and leads to similar pathological changes in the fetal organs.

Four hundred and three cases of eclampsia observed at the Berliner Frauenklinik have been analyzed by Goedecke.²¹ Three-quarters of these were in primiparae, and 23 per cent of these were old primiparae. Eclampsia rarely occurs in subsequent pregnancies. Of the 403 women, 8 had one recurrence, 9 had two; in all, 2.23 per cent of recurrences. Absence of albumin from the urine in some fatal cases, and its presence and absence in the same case at different times, shows that it is valueless for prognosis and uncertain for diagnostic purposes. Eclampsia usually occurs in the latter part of pregnancy. In one case the first symptoms were noticed five days after delivery, and the first attack occurred on the seventh day. The mortality of the 403 cases was just below 17 per cent.

As an instance of delayed eclampsia, Göz¹⁵ reports the history

of a woman who had several convulsions fifty-nine days after a normal labor and puerperium, while nursing her child. There is nothing in the history to indicate that they were other than uremic convulsions or to show any connection with pregnancy.

Omphalotripsy.—Porak³⁹ again advocates omphalotripsy, the only method of treating the umbilical cord employed in his clinic during the past year. His own cases so treated numbered fifty-one premature children. These he compares with fifty-five premature cases, admitted from other hospitals or private practice, in which the cord had been ligated. Umbilical infection occurred in 40 per cent of the cases from outside; in 28 per cent of those in which he employed omphalotripsy. The total mortality in cases ligated was 50.90 per cent, as opposed to 39.21 per cent in the other class. The mortality from umbilical infection was 50 per cent after ligation, 40 per cent after omphalotripsy. The latter method diminishes the liability to infection by desiccating the area open to invasion, but if germs obtain an entrance the destruction of so much of the barrier makes the result more serious. Oozing may follow omphalotripsy and rarely the instrument cuts the cord. If either of these accidents occurs artery clamps must be applied for from half an hour to an hour, but not longer, as the amnion may dry and adhere to the forceps, tearing when they are removed.

Hypertrophy of the Breast.—A woman 18 years old came to A. Grasmück,³⁸ during the last month of her first pregnancy, with breasts whose greatest circumference was: right 73 centimetres, left 69 centimetres. The enlargement had begun at about the second month. Potassium iodide was prescribed. Ten days after labor the breasts were secreting scantily and measured: right 58 centimetres, left 55 centimetres. A month later they had still further decreased in size.

The literature of this subject is increased by the publication by H. Zarukow¹⁵ of two cases of simple hypertrophy of the breasts of multiparae during pregnancy. The circumference of the breasts at the base was 57 and 58 centimetres and 62 and 46 respectively. In one potassium iodide, massage, and bandaging were employed. The breasts became of normal size after ten months. The end of pregnancy seemed to have no effect upon the hypertrophy.

Acquired Atresia of the Vagina and Pregnancy.—A. Brindeau⁴⁰ bases his paper upon three cases of acquired atresia of the vagina. The first, a secundipara whose previous labor was normal, aborted seven months after her last menstruation. An atresia of the vagina with a small opening was discovered. This was cautiously torn with the fingers and a small fetus extracted without serious laceration. The second had had six spontaneous labors. Her seventh began nearly at term and the membranes had ruptured before admission. There was, however, an apparently complete vaginal septum. Uterine contractions suddenly became strong and delivery

took place. When discharged hardly a trace of the old scar was visible. The third patient had had a forceps delivery, laceration of the perineum, and perineorrhaphy. A crescentic cicatricial band above the posterior arrested the head in her next labor and it was necessary to divide it in order to save the perineum from complete laceration. A month later the band was absent. From these cases and the literature Brindeau concludes that during pregnancy antiseptic treatment alone is indicated. During labor every opportunity should be given for the obstacle to yield spontaneously. If this does not occur operation by the vaginal route is necessary, dilatation or incision if the atresia is not too high and too marked. If the stricture is too long and complete, or nearly so, the Porro operation is advisable.

Postpartum Hemorrhage.—Under the name paralysis of the region of placental insertion, O. Schulze⁴⁷ describes a case of postpartum hemorrhage of peculiar origin. He refers to the fact that during pregnancy the uterine wall develops less in the portion where the placenta is attached than elsewhere, and that when the placenta is adherent the portion of uterine wall left after its separation is thin. Failure of this thin area to contract he terms paralysis of the area of placental insertion. In the case which he reports hemorrhage occurred after labor, although the uterus was contracted and bleeding from other points was excluded. A soft, depressible portion of the uterine wall was then felt posteriorly and to the left. Internal examination revealed the presence of this area and absence of retained secundines. It did not contract when stimulated mechanically and by hot and cold douches. Hemorrhage was finally arrested by uterine tamponade with solution of ferric chloride.

Pregnancy in Rudimentary Uterine Horn.—Krull⁴⁸ reports four cases of pregnancy in a rudimentary uterine horn successfully operated upon. In only one did hemorrhage necessitate supravaginal amputation of the uterus. He says that when signs of pregnancy are present and there is a swelling at the side of the uterus an important diagnostic point is the detection of a band connecting the mass with the uterus. Its thickness and solidity and its origin from near the internal os serve to distinguish this condition from ectopic pregnancy. Palpation of adnexa in connection with the mass also substantiates the diagnosis of pregnancy in a rudimentary horn.

Complete Rupture of the Uterus.—On account of the favorable outcome of three cases of complete rupture of the uterus, C. Cristeanu¹⁶ has decided that all such should be treated by laparotomy and extraction of the fetus through the abdominal wound when it is in the peritoneal cavity; followed by total abdominal hysterectomy performed in the Trendelenburg position, suture of the peritoneum, and perfect hemostasis. This is secured by catgut ligatures upon bleeding points. If the uterine artery is torn it must be found, even if it has retracted into the

tissues. Failing in this it is absolutely necessary to tie the corresponding hypogastric artery. After toilet of the abdominal cavity vaginal drainage is arranged and the abdominal wound closed by two layers of sutures.

Retention of Fetal Head in Utero.—An unusual case of separation of the fetal head from the body is that recorded by W. Ruth.¹⁸ The mother, finding the feet protruding from the vagina, succeeded in delivering the body by traction. Then drawing the body of the fetus up against her abdomen, continued traction resulted in tearing off the body from the head and division of the cord. The direct upward traction while the neck was against the symphysis seems to have broken the neck, which then separated.

Results of Induced Labor for the Child.—In response to Krönig's unfavorable expressions, F. Ahlfeld¹⁵ has made inquiry concerning 56 cases in which premature labor was induced at Marburg from 1883 to 1900. This number includes only married women, as so many mothers of illegitimate children allow them to die. Of the 55 who were reached by Ahlfeld only 5 had lost children during the first year, or 9.1 per cent. One of these was a woman who always preferred perforation to obtaining living children, and her child died only eleven weeks after birth.

Influence of Pulmonary Diseases of Mother upon the Fetus.—Chambrelen¹⁵ has investigated the effect of such diseases upon the fetus, taking up separately the phenomena: cough, asphyxia, fever, and infection, of which asphyxia and infection seemed most important. Asphyxia does not appear sufficient cause for abortion or premature labor, but may even lead to death of the fetus without causing uterine contractions, as the writer's experiments show. High maternal temperature is probably not usually a cause of fetal death, the latter resulting from the direct action upon the fetus of the affection causing the temperature. Infection localized in the pulmonary apparatus does not seriously affect the fetus, but if it becomes generalized the placental barrier will be passed and the fetus infected also.

Are Tub Baths Best for Cleansing Women in Labor?—W. Stroganoff⁴⁸ answers this question negatively. He shows that the dirt and bacteria from previous bathers in the tub and from the woman's own body and from excrement removed from the anal region are transferred to the nipples in diluted form and may enter the vagina. Furthermore, staphylococci or streptococci may be carried in the same way if the person has ulcers upon any part of the body. He advises washing with soap while the woman stands under a stream of running water. Since he has employed this method in his maternity service the morbidity has been reduced nearly seven and one-half per cent.

Decapitation by Breech Extraction.—The frequency and seriousness of this accident are shown by a summary of 70 cases collected by F. Neugebauer⁴⁵ chiefly from German, Polish, and Russian sources. The details of 2 cases are lacking. Of the others, 14 died and 11 required abdominal section.

Vagitus Uterinus.—Frankenstein⁴⁶ places on record a case of vagitus uterinus. As he introduced the hand into the uterus to perform podalic version and drew down a foot, the child was distinctly heard to cry twice. It was rapidly extracted after completion of the version, in good condition, crying loudly.

Version for Contracted Pelvis.—B. Wolff⁴³ discusses this subject on the basis of 196 cases of version usually followed by extraction. The maternal mortality was 2.6 per cent, the fetal 24.5 per cent.

Pregnancy and Carcinoma of the Cervix.—Pozzi² favors operation after the fourth month if the mother is in immediate danger; otherwise he prefers to wait until the eighth month and operate by the abdominal route, as the fetal life is then the more valuable. Bouilly² considers the mother's condition as hopeless in either case and so is opposed to early termination of pregnancy.

Conception and Abortion through the Bladder.—A. von Meer³ gives a description of a case of congenital malformation. The lower two-thirds of the vagina were absent; the upper third opened by a tract the size of a fistula, just admitting a sound, into the bladder. Two years previously the woman had aborted, the five-months fetus passing through this opening.

Expression of Retained Placenta.—For cases in which simple expression of the placenta fails, W. Zangemeister⁶ advocates massage of the uterus in the intervals between pains. With separate fingers the uterus is pressed inward from the sides and then from in front and behind, during the intervals. In this way the placenta is gradually separated, and, after a few pains, may be expressed by vigorous pressure during a uterine contraction.

Use of Cocaine in Obstetrics.—In a paper which is practically a review of the literature, L. Demelin¹¹ refers to the use of cocaine as an analgesic in labor by application to the cervix with a tampon, by injection into the labia majora near the posterior commissure, and by subarachnoid injection. His views of the last procedure are optimistic. Referring to Doléris' claim that cocaine so used is an oxytocic and that the same effect might be obtained by simple injection into the abdominal wall or the muscles in the sacro-lumbar region, he states that a few observations at the Tarnier clinic have seemed to support the latter suggestion.

Facial Paralysis after Spontaneous Labor.—Facial paralysis of the new-born is usually due to pressure by the forceps, and in cases of non-instrumental delivery has been attributed to pressure of exostoses in a flat pelvis. E. Frank,¹² however, records a case of spontaneous labor in which this condition did not exist. The woman, a multipara, had a very pendulous abdomen. Over the point of emergence of the left facial nerve was a depression in the fatty tissue into which the left shoulder exactly fitted. He ascribes the left facial paralysis to pressure by the left shoulder, as the child's head had been strongly flexed in that direction.

Ovariectomy during Labor.—In a case of E. Niebergall¹⁵ the head was prevented from entering the pelvic cavity by an ovarian cyst, part of which was in Douglas' cul-de-sac. Through a posterior vaginal incision this portion of the cyst was aspirated and the head immediately engaged. After forceps delivery and expression of the placenta, the other divisions of the cyst were tapped and the wall drawn down, pedicle ligated and divided, and the vaginal wound closed. Recovery. A patient of C. H. Stratz¹⁵ had been in labor four days without advance of the head on account of the presence of an ovarian tumor. As there were signs of peritonitis and threatened rupture of the uterus, the abdominal route was chosen. Cesarean section followed by ovariectomy resulted favorably to mother and child.

Changes in Placenta of Dead Fetus.—A. Rieländer²¹ has had the opportunity to compare the placenta of a dead with that of a living child at the twenty-third week. The dead child was macerated. There was one chorion, but two amniotic sacs were present. The portion of placenta belonging to the living child showed no lesions, while that of the dead showed endarteritis. As there was free communication between the vessels of the two portions, it is evident that the placental changes depended upon the death of the fetus, since if death had been due to primary endarteritis of the placenta the other portion of the latter would also have been involved.

GYNECOLOGY AND ABDOMINAL SURGERY.

Deciduoma Malignum.—A. O. Lindfors¹⁵ publishes a case of unusual interest. The patient was operated upon in September, 1900, for deciduoma malignum of the vagina. No growth was found in the uterine mucosa. On April 8, 1901, she died. The left lung and adjacent structures were the seat of an extensive new growth showing the typical structure of deciduoma malignum. No signs of tumor tissue in either the uterus or vagina. The case is emphasized as showing that deciduoma malignum with metastases can occur without involvement of the endometrium.

Prolapse of the Urethra.—This affection, according to A. Pinkuss,²² usually occurs in children. He reports two cases of partial prolapse involving the posterior portion of the urethra in women 37 and 21 years old, following respectively violent coitus in a woman who had previously suffered from cystitis and urethritis, and coitus after gonorrheal urethritis. A third case was a complete prolapse after the seventh labor of a woman 29 years old. Great expulsive efforts had been made. In each case the trouble seemed to result in a single severe strain affecting relaxed tissues. Regarding treatment, Pinkuss advises immediate reposition of the prolapsed mucosa; but he states that this will be permanently effectual only in persons otherwise healthy—without cough, etc. If acute inflammation of the prolapsed tis-

sue and adjacent areas is present, antiseptic and astringent applications are demanded. Partial prolapse of the posterior urethral wall may be successfully treated by cooling astringents with subsequent application of fuming nitric acid, silver nitrate, or glycerite of tannin, or treatment with the Paquelin cautery. Severe or complete prolapse requires surgical interference, which must be chosen to suit the individual case. Resection and suture is the ideal method. If only a small portion of the urethral mucosa is involved, it may be cut off and the divided mucosa sutured to the vaginal edge of the wound. If much is prolapsed, the urethra must be narrowed by operations resembling colporrhaphy or colpoperineoplasty. Care must be used not to exert too great traction or to remove too much of the urethral wall, lest the resulting tension after uniting the edges of the wound result in further loosening of the remaining mucosa or in stenosis. After operation catheterization should be most carefully performed in order to avoid injury to the urethra or cystitis. As in all other cases requiring frequent catheterization, the writer administers salol internally, finding it preferable to urotropin.

Longitudinal Resection of the Uterus.—For deviation of the uterus not due to hypertrophied, infected, and prolapsed adnexa, Mauclaire⁴ favors longitudinal median resection of the anterior and posterior surfaces of the uterus. A cuneiform section, not opening the uterine cavity but extending from the fundus to the vaginal insertion, is removed. When necessary this is combined with operations upon the ligaments of the uterus, curettage, or plastic vaginal operations.

Abscess of the Omentum.—C. Jacobs⁵ claims to have discovered a morbid entity—abscess of the omentum. Having previously observed one of tubercular origin, and one communicating with a streptococcus abscess of the uterine appendages, he now reports a case in which the suppurative process was entirely enclosed by the omentum, which was adherent to normal pelvic organs and the pelvic wall. Bacteriological examination showed streptococcus pyogenes and the colon bacillus.

Spontaneous Amputation of Fallopian Tube.—Jacobs⁵ discovered during an operation for parovarian cyst that torsion of its pedicle had occurred and spontaneous amputation of the tube at about two centimetres from its uterine extremity had taken place. He attributes this amputation to traction by the tumor, as the tube was otherwise normal. Cicatrization of its extremities had taken place.

Torsion of Fallopian Tube.—The patient, a nullipara of 22, had long suffered with attacks of pelvic pain occurring every three or four weeks and not always at the time of menstruation, which itself was very painful. A severe attack with symptoms of peritonitis occurred three weeks before operation by Jacobs⁵ for apparent prolapse of an enlarged ovary. He amputated the tube, which showed a double torsion and signs of a recent tubal

abortion. The blood discharged through the abdominal ostium had formed the simulated ovarian tumor.

Tubercular Peritonitis.—A. O. Lindfors⁴⁸ believes that by ligation of the blood supply of the tubercular focus a cure may be effected, and advises this treatment when extirpation of the deposit is impossible.

Ventrofixation through the Vagina.—The method described by C. Gebhard,²¹ and applied by him in four cases, consists in an anterior vaginal incision through which a heavy catgut ligature is passed around each round ligament. The ends of each ligature are threaded through the eye of a slightly curved lance-pointed needle, by means of which, guided by a finger in the vagina, they are brought out through the anterior abdominal wall at points where the skin has been incised. The ends are tied over a roll of gauze after drawing them taut.

Hemorrhagic Collections with Single and Double Genitals.—Careful examination of a case of double uterus and vagina with atresia of the right side and hematometra, hematosalpinx, and hemorrhage into the ovary, led C. H. Stratz²¹ to the belief that vaginal atresia may be either congenital or due to infection, whether in single or double genitals. The accumulation of blood in the tube arises chiefly from its swollen, edematous mucosa, which has lost a portion of its epithelium, partly comes from the uterus as the result of a menstrual process. The congestion, chiefly venous, from without, and the pressure atrophy from within, lead gradually to enlargement of the tumor.

Cause of Preclimacteric Bleeding.—A. Theilhaber⁴³ does not regard the majority of cases of preclimacteric bleeding as due to changes in the mucous membrane of the uterus or of its blood vessels, or to abnormal ovarian function. He attributes it to muscular atony of the uterus. At about the fortieth year the muscular element is gradually replaced by connective tissue and this change is accompanied by arteriosclerosis, which compensates for the uterine atony resulting from the changes in the uterine muscle. When the arteriosclerosis does not advance as rapidly as these changes, the relative permeability of the vessels results in preclimacteric bleeding.

Permanent Results of Myomotomy, etc.—F. Schenck⁴³ has investigated the permanent results of supravaginal amputation with retroperitoneal treatment of the pedicle which was performed by Von Rosthorn 123 times during 1891-1899, with 3.25 per cent mortality. Schenck was able to trace 74 cases through physicians or by letter. Of these 87 per cent were relieved of all trouble; 4 per cent had resulting hernia; 54 per cent were perfectly able to work and 22 per cent to do light work; 3 per cent had died. Of 65 cases of radical abdominal operation for inflammatory diseases of the appendages by Von Rosthorn, with 6.1 per cent mortality, Schenck traced 31. Ninety per cent of these were quite able to do work; only one patient was discontented.

Drainage of the Peritoneal Cavity.—After a total abdominal

hysterectomy followed by vaginal drainage of the peritoneal cavity, ileus required reopening the abdomen. In this, as in other cases, R. Fützl⁴⁵ then tamponed the entire abdominal wound, which healed by granulation in over two months. He favors this drainage without suture in cases of doubtful asepsis.

Purulent Parametritic Exudates.—Three cases of purulent exudate in the neighborhood of the uterus, operated upon by laparotomy, lead Droese⁴³ to the conclusions: that the diagnosis of the existence of a purulent collection connected with the sexual organs can be made only by observation of the general condition and of the pulse and temperature, in cases in which external and internal examination fails to reveal its presence. Laparotomy is the best method for the location and opening of purulent foci behind the uterus and above the true pelvis. It should be performed as soon as the clinical course suggests the presence of pus.

Lysoform for Disinfection of Hands, etc.—P. Strassmann⁴⁴ favors the use of lysoform as being fatal to anthrax bacilli in twenty-four hours when used in three per cent solution. Its soapy character, its freedom from toxic and corrosive qualities, and its slight odor are points in its favor. Strassmann employs two or three per cent warm solution for the hands, one per cent for the vagina, without narcosis, or two to three per cent before operation.

Clitoridian Crises.—Köster⁴² has observed a woman 49 years old, a sufferer from locomotor ataxia, who for ten years had had clitoridian crises. They occurred usually near the menstrual period and when in bed. A sudden voluptuous tickling sensation in the vagina would extend to the vulva or clitoris, which became erect. This sensation would increase until an orgasm occurred. Then severe pains in the vagina and lower part of the abdomen, extending toward the back, would be present at intervals for several hours. No change in the attacks followed the menopause, which had occurred two and one-half years before.

Cocainization of the Nose for Dysmenorrhea.—Schiff⁴¹ has investigated 47 cases in regard to the relation claimed by Fliess to exist between the nasal mucous membrane and the female genital organs. The so-called genital region of the nose, that is, the anterior end of the inferior turbinated and the tubercle of the septum, is regularly congested, swollen, and sensitive during menstruation. By cocainization of this area dysmenorrheal pains may sometimes be completely relieved. The application of cocaine to the anterior extremity of the inferior turbinated affects only hypogastric pains, while the tubercle of the septum seems similarly connected with only pains in the back. Dysmenorrhea from mechanical causes is not improved, but the effect is seen in that of nervous origin and that from genital disorders such as tumors of the adnexa, parametritis, etc. Of Schiff's 47 cases, 34 were relieved. By touching the regions spoken of he was able, in some cases, to cause severe pain in the

corresponding abdominal regions, and by cocaineization of the nasal areas to relieve these pains. He urges the trial, in all cases of dysmenorrhea from any except mechanical causes, of application to the genital region of the nose of cotton saturated with twenty per cent cocaine solution. If this succeeds he would employ electrolysis of the same region, as he has found that this yields permanent results in the relief of the pain.

Gynecological Massage.—According to Olshausen,³⁸ the usefulness of gynecological massage for firm pelvic exudates is confined to those which have long been free from inflammatory symptoms and which are readily accessible to the external hand, so that only the abdominal wall intervenes between the fingertips and the adhesions. The only tumors of the tubes which are benefited by this procedure are those cases of hydrosalpinx in which the manipulations lead to discharge of their fluid through the uterus. In tubes with thickened walls the only advantage is derived from the effect upon the surrounding infiltration.

Cancer of the Uterus.—Stapler³⁹ is opposed to radical measures in inoperable cases of carcinoma of the uterus. He favors, as a palliative procedure, swabbing the uterine cavity with thirty per cent solution of chloride of zinc or fuming nitric acid.

Permanent Results of Total Abdominal Hysterectomy for Cancer.—In reporting 19 new cases operated upon in this way, A. Funke³⁷ mentions the permanent results obtained in a series of 11 cases operated upon before 1897. Two of these died from direct extension. Five of the others are living, after an interval of five years: 2 cases of sarcoma of the uterus, 1 carcinoma of the cervix, 1 of the body, and 1 involving the entire organ.

Congenital Immunity to Vaccination.—A. Faidherbe¹ holds that the child of a mother previously ill with variola may be immunized against the disease if the interval between the mother's illness and pregnancy is not too great. As this interval increases the probability of transmitted immunity diminishes until it eventually disappears. This fact he advances as an argument in favor of the unity of vaccine virus and that of variola. His views are based upon observation of the effect of vaccination upon four children of a woman who had had variola before their birth, and upon the children of four other women, victims of this disease.

Purulent Affections of the Adnexa.—In an article on conservative treatment of purulent affections of the appendages, A. Dührssen⁷ calls attention to the importance of differential diagnosis between these and simple inflammatory exudates around the uterus. Besides mentioning the points of difference shown by physical examination, he lays down the rule that a so-called parametritic exudate which has lasted half a year after labor is usually a purulent collection in an ovary or a pyosalpinx.

Sterilized Yeast in Gynecology.—Although Landan described, in 1899, the treatment of leucorrhea by means of yeast introduced into the vagina, the method has been little employed.

It is known that yeast may either relieve or cause a catarrhal inflammation of the female genitals. R. Albert has recently experimented with sterilized yeast in this line and his methods of preparation and the results obtained are reported by his brother, A. Albert.⁸ The sterilized yeast cells form a dry powder which is described as consisting of "well-preserved corpses" of the cells. It contains peptic enzymes and one which causes fermentation, transforming sugar into alcohol and carbonic acid. With four grains of sterile yeast are mixed 20 cubic centimetres of twenty per cent solution of sugar. After separation of the vaginal walls by introduction of a spiral, 20 cubic centimetres of the emulsion are placed in the vagina, which is tamponed. The patient remains upon her back for six or eight hours, and after twelve or fourteen hours the vagina is then thoroughly irrigated with warm water. On the two succeeding days douches of salt solution are used, morning and evening, and the procedure is repeated on the third. The results obtained were: diminution of virulence of bacteria, change in vaginal secretion, and rapid healing of obstinate erosions of the cervix. The use of this method for preparing the vagina for operations is suggested, as it does not injure the vaginal mucosa as do ordinary antiseptics.

Pressure Paralysis after Trendelenburg Position.—Nine days after an operation in which this position was employed, K. Witthauer⁹ noticed beginning symptoms of paralysis of the peroneal group of muscles of one leg, which increased to characteristic drop-foot. The accident was evidently due to improper application of a leg-holder. Recovery eight weeks after operation.

Multiple Metastases by Inoculation.—Kunze¹⁰ removed by the vaginal route a uterus which was the seat of primary epithelioma of the cervix. The growth had caused obstruction of the cervical canal and retention of the uterine secretion. In this detached cancer cells had been carried to various portions of the mucous membrane of the body of the uterus, leading to secondary deposits.

Effect of Superheated Steam upon Uterine Mucosa.—This subject has been studied experimentally with bitches by M. Koslenko.⁸ The maximum temperature in the uterine cavity was found just after introduction of the steam, remained fairly constant for a definite time, and then fell with a rapidity which was more marked the higher the pressure of steam employed. With an application for twenty seconds of steam at an increased pressure of two atmospheres, examination of the uteri showed: on the first day, destruction of the mucosa to a certain depth; on the third, delimitation of the necrotic portion; on the sixth, expulsion of the slough; and after the ninth, regeneration of the mucosa from the uninjured deeper portion. In the case of a woman in whom it was necessary to prevent pregnancy, steam at the same pressure was employed for one minute for the purpose of obliterating the uterine cavity. On the sixth day a necrotic mu-

cosa and part of the muscular layer was expelled. The cervical canal was completely closed, except at the external os, and no subsequent pregnancy occurred. This method is simpler than castration or salpingectomy.

Vaporization of the Uterus.—S. Lachmann²⁰ advocates this procedure especially for climacteric and preclimacteric bleeding. The results are less favorable in hemorrhages in young women or resulting from endometritis. It is not without danger and should not replace milder means until they fail. It should always be tried before performing hysterectomy for persistent bleeding. H. Fuchs²⁰ says that it has entirely replaced that operation for this purpose in the Frauenklinik at Kiel.

Medullary Narcosis.—In discussing the question of mortality from this procedure, T. Tuffier¹⁴ holds that in comparing results with those from other anesthetics only cases which die on the table should be considered in relation to those from the other anesthetics, as a patient has only been reported as dying from other anesthesia if the fatal result occurred before recovering consciousness. For comparison with cases recorded as dying from lumbar anesthesia after return to the ward there are no statistics at hand, as such deaths are not attributed to ether or chloroform, but to shock, etc. Tuffier reviews the six cases in two thousand which Réclus has held to be deaths from medullary narcosis. Two of these Réclus himself considers doubtful; one was a simple lumbar puncture for diagnosis in tubercular meningitis, with no injection of cocaine, death occurring from the meningitis, as shown by autopsy. One died of acute general tuberculosis, with normal meninges. Another died while delirious after amputation for gangrene; no autopsy.

Chaput²¹ has performed lumbar injection of cocaine 57 times with 35 successes, 11 partial anesthetics and 5 failures. He believes that vomiting is connected with the nervous susceptibility of the individual.

Hemoglobinuria with Torsion of Pedicle of Ovarian Cyst.—To the symptoms of torsion of the pedicle of an ovarian cyst K. Kober¹⁵ adds hemoglobinuria as an unusual occurrence. Just before the operation a large amount of hemoglobin was found in the otherwise normal urine. The woman had always previously been well. Kober explains the hemoglobinuria as due to absorption into the circulation of an excessive quantity of pigment from the tumor, which was found saturated with blood. The quantity, being greater than the liver could convert into bile pigment, was excreted by the kidneys. The day after the operation no hemoglobin was found in the urine.

Instrumental Perforation of the Uterus.—An unusual case of this accident is described by F. Schenck.¹⁷ The woman had had nine labors in twelve years, but eight months had elapsed since the last. Menstruation had occurred shortly before the perforation. An intrauterine irrigator passed in for a long distance and two ineffectual attempts were then made to measure

the uterine cavity with a sound. In no case was any resistance experienced. Symptoms of perforation required an immediate laparotomy, which showed that the uterine wall had been punctured in three places. The friability of the organ also interfered with suturing.

Epithelioma of the Cervix.—An exception to the rule that pregnancy hastens the course of a cancer of the uterus is furnished by a case reported by H. Varnier.¹⁹ When first seen the patient was 23 years old, three months pregnant, with a large epithelioma of the cervix. In spite of the latter, delivery occurred normally. When again seen the growth was inoperable and death occurred several months later, three years and three months after the beginning of the pregnancy which led to its discovery, and two years and seven months after labor.

Dermoid Cysts in a Child.—F. Leguen,¹⁹ in operating upon a child 11½ years of age for supposed appendicitis, found instead dermoid cysts of both ovaries, the pedicle of the right having undergone torsion, causing the symptoms. He emphasizes the age of the child, bilaterality of the dermoids, and early torsion of the pedicle.

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DISEASES OF CHILDREN.

Acetanilid Poisoning in Children from Absorption from External Wounds.—Jacob L. Manasses¹ reports two cases to show the danger of using acetanilid as a dusting powder too freely, especially in children and infants. In one case the trouble was an acute inflammation of the buttocks of an infant, due to acid feces and urine. The surface was reddened, fissured, and moist. The other case was in a robust, healthy boy of 2½ years who had received a severe scald upon the buttocks. In both cases the dusting powder consisted of equal portions of subgallate of bismuth and acetanilid. In about twenty-four hours the patients became cyanotic and affected with subnormal temperatures, fee-

ble and shallow respiration, dilated pupils, weak and rapid heart, cold extremities, and bathed in perspiration. Both children recovered.

Adenoids and Tonsils, Persistence of Symptoms after Removal of.—F. Huber² presents some remarks on the causes of the persistence of these symptoms in some of the cases where we have looked for prompt relief. While it is true that adenoids are the principal cause of mouth-breathing, there are other obstructions to nasal breathing, such as narrow anterior nares, deflection, thickening, or inflammatory process of the cartilaginous septum, anterior and posterior turbinate hypertrophies, and bony spurs or deflections of the bony septum, associated acute or chronic naso-pharyngeal catarrh, and foreign bodies, all of which require attention before a complete cure can be expected. Now and then it is necessary to teach children in a systematic way how to breathe through the nose. This is accomplished by firmly compressing the lips, compelling the patient to breathe through the nose, this procedure being practised several times daily.

Alcohol in the Acute Infectious Diseases of Children.—Augustus E. Bieser³ says that to show that alcohol does unquestionably save tissue, it is only necessary to call attention to the three following well-known facts: 1. That urea excretion is diminished after ingestion of alcohol in therapeutic doses. 2. That confirmed drunkards, eating much less than ordinary people, still do not lose much in bodily weight. 3. That in exhausting fevers, shock, etc., when it is impossible to digest ordinary food, life is often sustained by alcohol in a way not explained by the cardiac stimulation of the alcohol alone. While alcohol should not be given in every case of fever, certain definite indications exist which imperatively call for its use: 1. Persistence of a high temperature. 2. Persistence of a rapid, feeble, irregular, dicrotic pulse, whether associated with high, low, or irregular temperature. 3. Persistence of marked prostration. If after giving alcohol the pulse becomes quicker and more irregular, the skin hotter and drier, tongue browner and drier, breathing shallower and hollower, it means that the patient has passed from the stage of depression in which alcohol is useful to that of exhaustion of the vital powers in which it is of no value.

In the acute infectious diseases of children the three following physiological functions are always disturbed: (1) vital function of nutrition, (2) of animal heat production, (3) of correlation of energy. What single drug so well meets these three disturbances of vital function as alcohol?

1. *Vital Function of Nutrition.*—By saving nitrogenous waste, as is evidenced by diminished excretion of urea, it certainly aids indirectly, at least, in restoring the vital function of nutrition in diseases where tissue-makers must be barred from the dietary. Barring tissue-makers, what better substitute for food than a tissue-saver like alcohol can we find?

2. *Vital Function of Animal Heat Production.*—By virtue of its making adequate provisions for proper heat elimination from the periphery of the body—for it must be remembered that fever in general, and especially in the infectious diseases, is due rather to diminished elimination of heat than to increased production of heat—alcohol reduces the fever, thus keeping the vital function of animal heat production at its proper balance. Is this a hindrance or an aid to *vis medicatrix naturæ*?

3. *Vital Function of Correlation of Energy.*—Alcohol in a healthy person increases frequency and force of the heart's action; in a heart weakened by fever and depression therapeutic doses (here where the heart is rapid but feeble) increase the force by diminishing the frequency of the cardiac pulsations; the working power of the heart is increased in both instances. By keeping the pulse-respiration ratio as near to four to one as possible, alcohol assists the natural recuperative powers of the organism in restoring the above vital function of correlation of energy. By correlation of energy is meant mutual conversion of energy, that converted energy is never lost, merely transformed. Thus, in a child whose vital functions are merely depressed, not exhausted, alcohol can induce the proper circulatory energy; this, in turn, is apt to induce the proper respiratory energy; both of these in turn are apt to cause the proper secretory and excretory energy, one being, as it were, dependent to a large extent upon the other.

Ninety-five per cent of ordinary diphtherias get well on rational treatment. It is the laryngeal and more especially the septic naso-pharyngeal cases that swell the mortality. In a total list of 195 diphtheria cases treated by mercury, iron, and whiskey (especially whiskey), including 17 laryngeal cases, 10 septic naso-pharyngeal cases, and 6 cases in infants 1 year old or under, the author had 11 deaths and attributes this favorable result to the alcoholic support given. While antitoxin saves more laryngeal cases than the former supporting treatment, it is at present still a mooted question whether septic naso-pharyngeal diphtheria has been benefited by antitoxin alone. Even Dr. Park says that antitoxin is usually of no avail in sepsis and bronchopneumonia complicating the worst cases. It is precisely in these cases that the author recommends whiskey in conjunction with iron and mercury; these cases giving evidence of that triad of symptoms which imperatively demands, not alcoholic stimulation merely, but alcoholic support.

Cerebral Diplegia in Children.—F. E. Batten⁴ gives the following as the types of this disease: 1. That known as the congenital spastic paraplegia, dating from birth and often associated with more or less mental impairment; and under this heading are included also all cases of generalized rigidity dating from birth, whether associated with choreiform and athetoid movements or not. 2. A progressive form of generalized rigidity coming on at a varying period after birth and tending to fatal

issue, or rather rapid degeneration taking place in children between 1 and 2 years of age. Closely allied to this form is the progressive form of degeneration seen in Jewish children, who become amblyopic and present certain characteristic changes at the macula. 3. The family form, in which several members of the family are affected, the children being as a rule normal till about the eighth year of life, and then gradually becoming spastic. These cases belong to the same category as the spastic family paraplegia which is met with in adult life. 4. The form of the disease closely connected with congenital syphilis, running a steadily progressive course with considerable mental impairment, frequently described under the name of "juvenile general paralysis." 5. The acquired form, occurring after some acute illness, which gives rise to bilateral affection of the cortex. This form is not as a rule progressive, but tends rather to improve. In many cases of cerebral diplegia the condition is slowly progressive and no treatment is of avail. In other cases, by regulating exercises, a good deal can be done to prevent deformity and to help the child to walk. The go-cart also helps considerably. Tenotomy is advisable in some cases. Mental training in some cases is also important and is attended with results that could hardly be expected.

Diphtheria.—Fred Grant Burrows³ gives his report of 2,093 cases treated in the Boston City Hospital. From being the most fatal of the acute infectious diseases, with a death rate of from 30 to 50 per cent, its mortality has been lowered to such an extent that it is now but a little more important factor in the total death rate of Boston than typhoid fever. Of this series of cases, 240 died. Twenty-eight and five-tenths per cent of deaths occurred in patients who were moribund when admitted to the hospital. The treatment adopted was the giving of 4,000 unit doses, repeating every four hours as long as necessary. In some exceptionally severe and late cases 4,000 units have been given every two hours, and in some cases 8,000 units every four hours. Some of the recoveries that have attended this mode of treatment have been so wonderful that only those who have seen them can appreciate them. The death rate from diphtheria in the Boston City Hospital for four years and a month previous to February 1, 1894, and for the last series of cases treated without antitoxin, was 45.3 per cent. The death rate for this series of cases, comprising those treated in the same institution during an entire year, is 12.23 per cent; that is, the death rate has been lowered 33 per cent. In writing of diphtheria before antitoxin was used, Osler says: "No disease of temperate regions proves more fatal to nurses and physicians." Yet in the contagious department of this hospital, during all of the time antitoxin has been used, more than 7,000 cases have been treated, and more than 100 nurses, physicians, and employees of the department have contracted the disease and there has not been a death among them. As to the effect of the antitoxin on the diph-

theritic membrane, the author has repeatedly seen the false membrane extend and thicken even after three or four 4,000 unit doses of antitoxin had been given, and then rapidly disappear when double that amount had been given.

Alcoholic stimulation should be used freely and frequently, and sufficiently early in the disease to ward off, if possible, the attacks of extreme weakness and collapse that are not uncommon in patients whose tissues are undergoing degenerative changes. The use of digitalis is indicated only in exceptional cases, as the heart muscle becomes flabby and shows more or less evidence of fatty degeneration early in the disease. Hot packs are of especial value in cases showing diminished urinary secretion, and drachm doses of a saturated solution of magnesium sulphate, given every hour, have proved of value as a diuretic in children. All intubed patients are fed by means of an esophageal tube, and it has been found better to feed them in a partially sitting posture, supported by the nurse, as this method is less liable to give rise to inhalation pneumonia. When vomiting is persistent, rectal feedings are of assistance. Formerly, during severe epidemics, diphtheria often claimed every child of a household as its victim. This series of cases, on the other hand, contains three and four and five members of some families, all of whom were discharged well. Clinical experience teaches that the toxin can best be neutralized in the shortest time by giving antitoxin early, in large doses, and at frequent intervals. When the nature and extent of the degenerative changes are considered, the reasons for continued and prolonged rest in bed are also obvious.

Enteric Fever in Childhood.—William L. Stowell⁶ says, in reference to the therapeutics of this disease, that intestinal antiseptics is of prime importance. Though the symptoms are caused by the toxin from the bacilli already absorbed, there is no reason why we should not do all possible to prevent further absorption. Laxatives are called for during the first few days. Calomel, one-tenth grain every hour, is antiseptic to some degree and promotes glandular activity in the liver and intestines. Salol is the author's favorite drug as an antifermentative and antiseptic. Naphthalin and thymol are powerful enemies of typhoid germs and destroy the ptomaines, but he prefers salol. During the first week give children citrate of magnesia. During the third week the soft, compressible pulse of a flagging heart needs help. Strychnia, digitalis, camphor, and ammonia will spur it on by increasing the systole. Coffee may be given by mouth or per rectum. Children are very susceptible to the effect of alcohol on the nervous system, not to mention its interfering with digestion. The author has given it up in children, except in the form of liquid peptonoids, in which form its supporting qualities outrank its stimulating effects. Occasional doses of antipyretics of the coal-tar group may be given in particular cases, but their effect on the circulation should be watched. Children do not show much tolerance for the Brandt treatment, and sponging is

preferable. The author gives few medicines. Whether nourishment is fluid or solid is not so important a consideration as whether the food will be digested and assimilated.

Head-Knocking.—Charles J. Aldrich⁶ reports a case of the head-knocking or rachitis, common in London, but rarely observed in this country. The child, 13 months old, was in a miserable, half-starved, filthy condition, owing to poverty and its mother's illness. Its face, neck, and head were covered with contusions, which the mother said were self-inflicted, but which the physician and others believed were due to beatings. The child was brought to the Cleveland General Hospital, where it was observed to knock its head against the cradle rail. A padded bed having been provided, it battered its head and face with its attenuated fists. Had the child been dead, no jury could have been convinced that its caretakers were not responsible for the bruises and death. This syndrome should be distinguished from head-nodding and head-rotation usually associated with nystagmus, and from the "head-banging" in which young children turn on their faces during sleep and bang their faces into the pillow a number of times without awakening.

Infections of the Umbilicus.—M. Porak and M. Durante⁷ call attention to the fact that the umbilical wound in the new-born child is a frequent source of infection. The symptoms may be manifested locally or in distant organs. The local symptoms may be not only gangrene, erysipelas, or suppuration, but simply redness, serous exudation, slowness of cicatrization, exuberant granulations, bleeding and hemorrhages, which, however unimportant they may be in appearance, demand careful attention. If neglected they may be followed by the most serious results. In some cases there are no local manifestations of infection, but the microbes penetrate through the umbilical vessels into the live and general circulation or through the granulating tissue. The symptoms of general and secondary infection will vary according to the nature of the pathogenic agent, its virulence, its mode of entrance, and the resisting powers of the organism. General septicemia is frequent; of local septicemias those of the liver and the lungs occur most often. In the liver hepatitis with degeneration of the hepatic cells is apt to occur. In the less severe cases there will perhaps be a deficiency of bile, giving rise to dyspeptic symptoms. As to the relations between the umbilical symptoms and the form of infection, it may be stated that, with the exception of gangrene, erysipelas, and phagedenic ulcers, the more pronounced the local lesions the more benign the infection. This may seem paradoxical, but has proved true in numerous cases.

Intermittent Albuminuria of Young People.—H. Gillet¹³ by this term indicates an albuminuria which occurs daily, but only at certain times during the day, and not continuously. For the diagnosis, therefore, it will be necessary to examine the urine passed at different times, and not a mixture of the whole amount

collected in twenty-four hours. Standing appears to have a marked influence on the production of albumin in this form of albuminuria. It does not occur at night as a rule. In some patients it appears in the morning, very soon after rising, or later; in others in the afternoon, rarely in the evening. Sometimes it appears twice in the day. An examination of the urine of these patients shows: 1. Marked oliguria, which is more constant than the albuminuria; the patient passes more urine at night than in the daytime. 2. Urobilinuria. The toxicity of the urine is increased. Urea is diminished. Clinically the patients may be divided into three groups. In the first the albuminuria comes as a surprise in patients who are apparently in good health. This is rare. In the second there are vague symptoms which suggest anemia, lymphatism, neuroses, neurasthenia, slight dyspepsia, growing disorders, neuro-arthritis, etc. Nothing in the least suggestive of kidney lesions. In the third class the symptoms are more like those of nephritis: headaches, slight edema of the face, none of the tibia, lumbar pain, attacks of heat. No heart symptoms; pulse slightly slowed, with low pressure.

As to the etiology, hereditary influence is noted in some cases. In nearly all the cases observed by the author there was some previous infection or intoxication, as nephritis, scarlatina, diphtheria, typhoid, measles, chorea, grippe, syphilis, tuberculosis, malaria, etc., etc., or certain diatheses, as arthritis or diabetes. Cases of intermittent albuminuria may go on for months or years, and may be constant or have long intermissions. The prognosis as to life appears to be good. The exact condition of the kidney is unknown, since there are no autopsies. It is probable, however, that there is some kidney lesion, however slight. Treatment should be chiefly hygienic; diet should consist of milk, farinaceous vegetables, stewed fruits; very little meat. No alcohol. Hydrotherapy, open air, massage are good. No mental or physical overwork. The *horizontal position* is often curative of itself. The patients should be on their feet as little as possible. The intestines should be kept open. Renal opotherapy may be tried, the extract to be taken from very young animals.

Laryngeal Habit Spasm.—Luther C. Peter* reports the case of a boy of 14 years who has had several attacks of chorea. A month after the onset of the last attack the present symptoms developed, which consist of the emission of a sound which is neither a sigh nor a bark, but a sharp tone, about the pitch of the voice in conversation, suggesting a spasm of the vocal cords, which as suddenly relaxes. The frequency of the sound is increased by excitement, does not occur during conversation, and ceases entirely during sleep. Some regard this phenomenon as chorea of the larynx, but the author considers it habit spasm for the following reasons: 1. Movements of chorea are increased not only by emotion but also by voluntary effort. In this instance emotion increases the frequency of the sound, but voluntary

effort does not. 2. The movements of chorea are always inco-ordinate, the muscles being individually in spasm or action and not physiological groups, or, if the latter, only coincidentally. In this boy phonation apparently is involuntary and the muscular movements are nicely co-ordinated so that tones are produced which are uniform in pitch. The constancy and bilateral origin are in favor of habit spasm. 3. The symptoms improved rapidly under a line of treatment which would not influence chorea to any great extent in a short time. By the use of arsenic and a suggestive therapeusis he improved rapidly. In the etiology of this form of habit spasm we find the same causes operating as in other habit spasms and, in fact, most of the neuroses of children. An hereditary neurotic taint is present in nearly every case. Added to this are the wretched surroundings of the poor, improper and insufficient food, and the harmful effect of exposure to factory work during the developmental period. More potent even is the excessive use of tea and coffee, so largely used among the poor instead of substantial food. Reflex irritation from adenoids, enlarged tonsils, ocular strain, etc., play an occasional part in the etiology, but only on markedly neurotic subjects. Hygienic measures and tonic treatment should be adopted.

Medical Treatment During the Adolescent Period.—Edward Rosenthal¹ writes that the adolescent period in the female may be said to be as critical in result as the menopause. The commonest symptom that presents itself is the one that refers itself to the menstruation. The cases may be divided into those who have never menstruated, and those who have had a slight menstrual flow at infrequent intervals—once in six or nine months. The other symptoms are digestive disorders, headaches, languor, flushing, sensations of fulness in the abdomen, disturbed or unnatural sleep, or sleepy condition during the daytime, and some cutaneous affection—most commonly acne. All or part of these symptoms may present themselves. In cases where menstruation has never appeared, an examination should first be made to ascertain if any anatomical reason exists, such as an impervious hymen or cervix, or absence of uterus, ovaries, or vagina. In such cases surgical measures are the only resources. Where no anatomical reason exists, much can be done to aid a cure. The absence of anemia need not preclude the use of iron, but the physical condition of the patient should receive attention before specific remedies are used to hasten the appearance of the menstruation. Iron is the chief remedy in menstrual disorders, and may be given at all times—before, after, and during the flow. A certain time in the life of the patient should be set apart for the active and specific treatment. The time chosen should be when the symptoms are most aggravated. The days, one, two, or three, should be set apart, and our treatment should always culminate at this period. If we fail at one, then we should begin again and pursue the treatment until the next period, and thus on. The writer uses iron in three or four daily doses, preferably

Gude's pepto-mangan, increasing the dose gradually up to a tablespoonful given in a wineglassful of milk every three to four hours. With this he gives a compound rhubarb pill each day, and continues the treatment through each period, for many months if necessary, until perfect health is obtained.

Middle-Ear Disease, Non-surgical Treatment of.—Eugene V. Riker⁹ writes that in acute inflammation of the middle ear relief of pain is the first consideration. The patient should be put in bed, a saline cathartic administered, dry heat applied, and, if there is no contraindication, a dose of some of the coal-tar derivatives given; but moist heat, oils of all kinds, and all aqueous solutions should be avoided. Aqueous solutions of morphine, atropine, or cocaine are not absorbed by the drum and can do no good. Leeches applied in front of the tragus are often beneficial. Opium should never be used, as it might mask symptoms of mastoid involvement. If relief does not come speedily from these symptoms, paracentesis should be resorted to. In chronic hypertrophic or hyperplastic inflammations of the middle ear, the most frequent causes are adenoid growths in the vault of the pharynx, enlarged pharyngeal tonsils, hypertrophied, turbinated, deflected septum, or some other form of nasal obstruction. If the Eustachian tube is involved, it should be inflated as often as necessary by Valsalva's method or Politzer's air-bag, with strictly aseptic measures. If this method causes an aggravation of the symptoms it should be at once discontinued. When fluid has accumulated in the middle ear it is better to attempt emptying it through its natural drainage—the Eustachian tube—by means of inflation. This failing, the drum should be opened, after which inflation with absorbing and stimulating vapors should be practised, together with mild massage of the drum, which helps to absorb any exudate and keeps the articulation from becoming ankylosed. There are aurists who condemn removal of diseased ossicles, in the belief that it does no good to the hearing and exposes the membrane of the middle ear to direct contamination from the atmosphere, thereby being a constant source of danger. The author's experience leads him to agree with those who maintain that the operation is justified by the fact that 50 per cent of the patients are greatly improved by the operation and the remainder only slightly inconvenienced.

Multiple Liver Abscess due to *Ascaris Lumbricoides*.—J. C. Thomson¹⁰ says that the body of a Chinese female child, about 8 years of age, recently found by the police at Hunghom, a village in British territory opposite Hong-Kong, showed a condition due to the presence of *ascaris lumbricoides*, which is fortunately uncommon. The liver was greatly enlarged and riddled into small abscesses, varying in size from a mere point of pus to cavities an inch in diameter. In the larger cavities and throughout the liver ducts there were numerous round worms, which had, by the irritation of their presence and by blocking the bile ducts, caused the multiple abscesses. The intestine was packed

with the parasites, and the stomach contained a mass of them as large as a man's fist. The body was much emaciated, but the organs were otherwise quite healthy.

Operative Management of Tubercular Hip-Joint Disease.—

A. F. Jonas^s thus sums up his conclusions: 1. The aim of our efforts is to be radical in the removal of all affected structures and the preservation of all healthy bone. 2. To preserve the greatest amount of healthy bone, and consequently to insure the best possible function, makes early incision imperative. 3. To insure the best possible function means not only the early evacuation of intra-articular tubercular products and removal of diseased structures, but implies a most thorough disinfection. 4. The most effective disinfection method known to us at the present time is pure carbolic acid and alcohol. It forms one of the most useful adjuncts. 5. To insure the retention of the femoral extremity in the cotyloid cavity, which is necessary to insure good function, requires the greatest possible obliquity of the upper end of the bone. This can be done only by preserving as much of the neck as possible. Where a portion of the neck is destroyed or must be removed, a certain obliquity can be obtained by removal of the trochanter major. 6. To insure permanent usefulness of the hip joint, long-continued mechanical correction by means of portable extension brace must be insisted upon. 7. Excision of femoral head, neck, and trochanter must be avoided when possible.

Otitis Media Suppurativa, Surgical Treatment.—Emil Amberg⁹ advocates early paracentesis and believes more danger is incurred in postponing the incision than in making it. This is especially the case after influenza. In every case of acute middle-ear suppuration, pus finds its way into the mastoid cells, though inflammation of the mastoid is not necessarily present. As the tympanum is the lowest readily accessible part of the middle-ear cavities, paracentesis offers the best chances for effecting drainage. In chronic suppurative inflammation of the middle ear, the pus can escape as long as the perforation of the drum is not obstructed. When, therefore, a polypus obstructs the passage, it is obvious that its removal is a necessary step and sometimes a difficult one. Care must be taken to differentiate between a polypus and the conical elevation of the drum membrane with a perforation on its top. The removal of diseased ossicles is a most important procedure toward curing a chronic suppuration, by removing a focus of infection and by making the epitympanic cavity more accessible to treatment. The author calls attention to Schwartze's rules for opening the mastoid: 1. In acute primary and secondary inflammation of the mastoid process, if, under proper treatment, pain, edema, and fever do not cease after not more than eight days. 2. In chronic inflammation of the mastoid portion with repeated attacks of swelling which disappear for a time, or with already formed abscesses, even if for the time being there do not exist symptoms

endangering life. 3. As soon as symptoms appear which make it probable that there is a complication endangering life, caused by retention of pus or the formation of cholesteatoma. 4. In otherwise incurable neuralgia of the mastoid process. 5. As prophylactic operation against fatal sequelæ of incurable, fetid suppurations, without signs of inflammation on the mastoid process and without signs of the retention of pus, as soon as an exact otoscopic examination shows that the suppuration is not confined to the tympanum.

Rheumatic Chorea.—Leonard Guthrie¹¹ divides the varieties of chorea into two groups: 1. *Sthenic* or *explosive chorea*, in which the predominant characteristics are spontaneity, violence, persistence and wide range of movements. 2. *Asthenic* or *pseudo-paralytic*, in which the movements are less in evidence, and there appears to be loss of muscular power, or at least loss of will power to execute voluntary movements. Sthenic chorea has three subdivisions: (a) Spontaneous movements cease entirely so long as the child is at rest and unnoticed, but return if one looks at him or approaches the bedside. They also reappear on volitional actions. In this condition spontaneous explosiveness of motor centres has ceased, but they are readily excited and there is still great want of inhibitory control. (b) The spontaneous movements cease, the limbs are flaccid while the child is at rest, but on handling them they become stiff and rigid, and there is considerable inco-ordination or attempted voluntary action. The knee jerk is sometimes exaggerated, and on repeatedly tapping the tendon the limb gradually rises to a position of extreme extension with general rigidity and inversion of the foot, and remains so for a few seconds. (c) Residual chorea. This is a condition, often protracted for an unlimited time, in which spontaneous movements continue, and in which there is great clumsiness and ataxy in using the hands and a shambling, awkward, blundering gait. The child is in perfect health and can overcome his symptoms by an effort of will. The chorea is cured, but the symptoms remain. The asthenic form commonly succeeds severe sthenic cases. In severe cases of asthenic chorea the patients are usually emaciated and prostrate. They lose all power of voluntary movement, and attempts to execute them result in slight twists or shrugs of the whole body. There are seldom facial contortions, but the expression is wild or imbecile. There is often well-marked retraction of the upper eyelids and the lips are pursed and pouting. Often the tongue cannot be protruded, speech is lost, mania and dementia are not uncommon. In the asthenic group of cases there seems to be inhibition of movement rather than want of inhibitory control. There is not the hyper-excitability of motor centres which marks the sthenic variety. As in the sthenic group, the types of the asthenic pass into each other.

The treatment of severe sthenic chorea consists of: Rest in a bed with padded sides; chloral hydrate pushed until natural sleep is procured; tincture of *cactus grandiflorus* in doses of

two or three minims where there is cardiac disturbance or feebleness: arsenic should *not* be given in large doses, but given in ordinary amount is valuable in mild cases. Salicylates are sometimes beneficial. The treatment of the subvarieties of sthenic chorea will consist of "suggestions" (not hypnotism) that the child should lie quietly, combined with gentle restraint of flourishes and wriggings; passive movements, voluntary movements under guidance, and (when this can be done without exciting spasms) voluntary movements without control, in imitation of the observer's. Bringing the fingers together, the building of squares or cubes, draughts, dominoes, spilkins, will all teach precision of movement. A child may usually be considered cured when it can build a two-storied house of cards. The treatment of asthenic chorea should be recuperative and stimulant rather than sedative. In severe cases absolute rest in bed with an abundant and nutritious diet. Brandy, 4 to 6 ounces in twenty-four hours, is not too much for a child of 8 to 10 years. It must be reduced as soon as improvement commences. Quinine is useful in asthenic chorea. Salicylate of quinine when there are muscular pains, cod-liver oil and maltine, nux vomica and iron when anemia is present, are better remedies than bromides and sedatives. Arsenic in small doses is beneficial. Mild galvanism and massage are good. Passive movements and exercises under guidance and without are useful, but here voluntary movements are not hindered by spasms and ataxy, but by inhibition of will power. The patient has to be taught gradually or coaxingly. The author, in conclusion, believes that any condition which lowers general health may favor the flourishing of the diplococcus rheumaticus and so give rise to chorea. Hence in every case of chorea the presence of errors of refraction, nasopharyngeal diseases, defective teeth, gastro-intestinal disturbance, parasites both internal and external, genito-urinary affections, and all sources of mental distress must be sought and treated or removed if found. It is to be hoped that the discovery of the diplococcus rheumaticus will lead ere long to the finding of its antitoxin.

Stammering.—C. Biaggi¹² holds that stammering is a degenerative form of speech due to an averted development of the co-ordinating powers of the movements essential to speech. Stammerers so frequently have other somatic and psychic peculiarities that one is driven to this conclusion. As a rule, we find in their family history evidences of nervous, alcoholic, insane, or diathetic heredity, sometimes other disturbances of speech, and the children themselves have often shown retarded development in the use of words, or in walking, or in the processes of nutrition. They are usually nervous, emotional, and timid. As adults these traits become even more marked. The condition is a congenital one, even though it does not manifest itself until the fifth or sixth year of life. Stammering, however, is curable in the most simple and physiological manner possible. The exercise

of a given muscle influences not only the muscle, but also its supplying nerve and that part of the brain from which the nerve derives its impulse. A child learning to play a five-finger exercise on the piano finds at first great difficulty in so doing, twists and contorts the whole body and makes endless grimaces; finally, however, by constant and repeated exercise of the fingers, the task becomes an easy one and only the muscles needed are used. The stammerer is an awkward player on his organs of speech; his lips close tightly when he wants to open them for a *b*; a contracted *v* takes the place of an *f*; he cannot get his vocal cords to work properly. Contortions of the body are not wanting. Chervin speaks of a boy who had to make rotary movements in order to speak; Coen, of one who began every sentence with a jump. All these involuntary movements should be put under the influence of the will and made voluntary, trained, exercised, and the patient, co-operating in the efforts made on his behalf, will soon show the desired improvements. Let all the movements of speech be reduced to elemental motions, and be exercised at first singly, and then gradually in co-ordination, at the same time suppressing the accompanying and unnecessary body movements. The result is well worth the efforts made on behalf of the poor sufferer.

The Efficacy of Injections of Antidiphtheritic Serum as a Preventive.—M. Netter¹⁴ holds that these injections constitute the best known method of prophylaxis. They do not confer absolute immunity, but they protect the patient for about three to four weeks. Moreover, should the disease occur in spite of their use, it will certainly be in an attenuated form. Injections should certainly be administered whenever an epidemic of diphtheria occurs in a school, crèche, or any other place where children are gathered together. It might even be advisable to inoculate all children in hospitals about every three weeks in order to suppress cases that would otherwise inevitably occur.

Treatment of the Hair in Typhoid Fever.—H. M. Little¹⁵ says that in view of the fact that in different institutions and in private practice not a little variation of opinion exists as to the necessity of cutting the hair (or shaving the scalp) in typhoid fever, he has examined into the results of the treatment under different conditions. Sixty-two cases were examined some months after their illness. Of these, 35 had their hair cut while in hospital, and in only 7 was subsequent falling out of the hair noted. Of these 7, 4 were cut late. The ultimate result in all was a thicker growth of hair than ever before. In 2 cases it was thought to be coarser than before. Twenty-seven patients (15 women, 12 men) had not their hair cut and in 3 only there was no falling out. Ten had to have their hair cut later to prevent baldness, 7 being females. In 7 other cases not cut, 4 are very thin, 2 were still falling, and one, curly before, is now thin and straight.

Urine of a Newly-born Infant.—George Carpenter¹¹ reports:

the case of an infant whose mother was unable to nurse it and which was placed on humanized milk, but did not thrive. Finally it had to be given a wet-nurse. A trace of albumin was found in the infant's urine when first examined. Operations were begun April 4, *æt.* 27 days. During the first twenty-four hours she passed $18\frac{1}{2}$ fluid ounces of urine; for the ten following days the smallest amount evacuated was 17 ounces, the largest $22\frac{1}{2}$ ounces. The urine was pale and of low specific gravity. The highest obtained was 1005, and it was usually from 1001 to 1002, and invariably contained a trace of albumin. Urea was present in trifling amount, varying between one-quarter and one-sixth of a grain per fluid ounce. Many careful microscopical examinations of the sediments obtained by the centrifuge from this urine were made, but no hyaline nor granular casts were found. The urine, therefore, of this infant differs from that of other infants recorded, by reason of the large quantity of urine passed, its low specific gravity, absence of casts, and the small amount of urea. At the time these observations were being conducted the infant was not gaining weight and was somewhat dyspeptic. There was no evidence of organic disease, and nothing to suggest that it had "contracted granular kidney." With the wet-nurse it increased one pound in weight in a fortnight and continues to thrive.

Whooping Cough Cured by Irrigation of the Nares.—E. Marten Payne¹⁷ advises this method of procedure and reports a case in which the symptoms had grown worse in spite of the ordinary treatment, and disappeared in a week after irrigation. The writer used a 1 in 40 solution of carbolic acid, but thinks any good antiseptic would answer. He believes that it is essential to the success of the treatment that the irrigations be thorough, and for that reason should be carried out by the attending physician himself. The reason why insufflations and sprays, which have been tried in the past, have met with so little success, is that the nares cannot thus be cleansed of the micro-organisms which swarm in the complicated cavities of the nose. On the other hand, by irrigating they are overwhelmed by the deluge of antiseptic.

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ORIGINAL COMMUNICATIONS.

THE COMPLICATIONS AND DEGENERATIONS OF FIBROID
TUMORS OF THE UTERUS AS BEARING UPON THE
TREATMENT OF THESE GROWTHS.¹

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THE traditional teaching concerning fibromyomata of the uterus is that these tumors are of frequent occurrence, that only exceptionally do they produce grave symptoms, that after the menopause they tend to undergo a spontaneous cure, and that only in the rarest instances do they cause death. This teaching, while traditional, has never been universally accepted. It has been combated from time to time by those having to deal with grave conditions arising from the presence of fibroid tumors. As early as 1853 the classical essay of Washington L. Atlee, "The Surgical Treatment of Certain Fibrous Tumors of the Uterus Heretofore Considered beyond the Resources of Art,"² appeared. This essay largely consists of a description of the serious conditions resulting from fibroid tumors, together with an earnest plea for their radical removal. Until recently hem-

¹Read before the Ontario, Canada, Medical Association, June 19, 1901.

²Trans. Amer. Med. Assoc., 1853, vol. vi., p. 547.

orrhage has been considered the chief, if not the only, danger arising from them. It is now appreciated that patients suffering from fibroid tumors are subjected to many other risks that arise from the degenerations and complications of these growths. Necrosis; myxomatous and cystic degeneration of the tumor; calcareous infiltration; associated malignant disease of the body of the uterus or of the cervix, and complicating diseases of the uterine appendages, such as ovarian tumors, pyosalpinx, salpingitis, etc.; not to mention the more remote effects upon the alimentary tract, the cardio-vascular, urinary, and nervous systems—may cause death or continued invalidism of such patients, independent of the natural history of the tumor itself.

In estimating the risks of patients suffering from fibroid tumors, the profession has been too prone to be guided by the teachings of the past rather than by the results of the more careful observations of the present. The chief purpose of this paper is to present in detail the nature and complications of fibroid tumors as they are met with in actual practice. It is well known that fibroid tumors of the uterus are frequently complicated by other conditions, but accurate tables of considerable numbers of cases with their complications are conspicuous by their absence. As a contribution to the study of fibroid tumors, I wish to report 218 cases in which various operations have been performed. This report includes all cases of operation for fibroid tumors in my practice. An analysis of this group of cases, showing the degenerations in the tumors and the various complications encountered, should give a more satisfactory picture of the condition of patients suffering from fibromyomata of the uterus than any merely theoretical consideration of the subject.

It will at once be apparent from the accompanying analysis that fibroid tumors do not occur in actual practice as an isolated, uncomplicated morbid condition. On the contrary, patients suffering from these tumors, as we meet them in the consulting room and in the hospital, are found very frequently to have in addition serious complicating diseases, not only of the uterus and of its appendages, but also various morbid conditions in the body at large.

In the 218 patients operated upon for fibromyoma uteri to May 24, 1901, the following complications were encountered:

Appendicitis	4
Bilateral hydrosalpinx	8
Unilateral hydrosalpinx	5
Hematosalpinx	1
Calcareous infiltration	5
Cystic degeneration of ovaries.....	2
Ovarian cyst with twisted pedicle.....	1
Ovarian cyst, bilateral.....	2
Ovarian cyst, unilateral.....	19
Ovarian cyst, suppurating.....	1
Bilateral dermoid cyst; umbilical hernia.....	1
Dermoid cyst, suppurating; sinus through abdominal wall.....	1
Dermoid cyst with twisted pedicle	1
Intraligamentous development of fibroid.....	10
Retroversion of uterus.....	3
Procidentia of uterus.....	3
Parovarian cyst	2
Ectopic pregnancy	3
Papillary carcinoma of both ovaries	1
Abscess of ovary	1
Pyosalpinx, bilateral	5
Pyosalpinx, unilateral	3
Salpingitis, bilateral	2
Salpingitis, unilateral	5
Myxomatous degeneration of tumor.....	5
Cystic degeneration of tumor.....	5
Necrosis of tumor.....	12
Adenocarcinoma of body of the uterus.....	3
Epithelioma of cervix uteri.....	4
Sarcoma	2
Syncytioma	1

In estimating the risks encountered by patients suffering from fibroid tumor, we shall consider first those growing out of the complications themselves, which we shall classify in three groups: *first*, those which would lead to a fatal result; *second*, those which would threaten the life of the patient; and, *third*, those which would involve more or less invalidism.

1. Of complications which would lead to the death of the patient are the following:

Ovarian cyst with twisted pedicle.....	1
Ovarian cyst, bilateral	2
Ovarian cyst, unilateral.....	19
Ovarian cyst, suppurating	1
Bilateral dermoid cyst; umbilical hernia.....	1
Dermoid cyst, suppurating; sinus through abdominal wall	1
Dermoid cyst with twisted pedicle.....	1
Ectopic pregnancy.....	3

Papillary carcinoma of both ovaries.....	1
Abscess of ovary	1
Pyosalpinx, bilateral	5
Pyosalpinx, unilateral	3
Cystic degeneration of tumor.....	5
Necrosis of tumor	12
Adenocarcinoma of body of the uterus.....	3
Epithelioma of cervix uteri.....	4
Sarcoma	2
Syncytionia	1
To these must be added three cases of cancer of the cervix complicating fibroids, in which hysterectomy was not performed, reported in 1897 ¹	3
Also one case of epithelioma of the cervix complicating a fibroid tumor of the uterus, seen in consultation with Dr. W. Wayne Babcock in 1899, in which the patient's general condition forbade operation. Also a fifth case from my hospital service, reported by Dr. Babcock in the <i>American Gynecological and Obstetrical Journal</i> , 1898, vol. xiii., p. 402. This is Case 2 of Dr. Babcock's report, in which a fibroid tumor of the uterus was complicated by epithelioma of the cervix, making altogether 12 cases of cancer complicating fibroid tumor which have been encountered	2
Total	71

Of the fatal degenerations and complications, 32 are of the uterus or tumor and 39 are of the appendages.

2. Of complications threatening the life of the patient are the following:

Appendicitis	4
Bilateral hydrosalpinx	8
Unilateral hydrosalpinx	5
Hematosalpinx	1
Parovarian cyst	2
Myxomatous degeneration of the tumor	5
Total	25

3. Of conditions leading to more or less permanent invalidism of the patient are the following:

Calcareous infiltration	5
Cystic degeneration of ovaries.....	2

¹Noble, Charles P.: The Development and Present Status of Hysterectomy for Fibromyomata. Trans. Amer. Gynec. Soc., 1897, p. 38; British Gynec. Jour., 1897, vol. xiii., p. 48.

Intraligamentous development of fibroid.....	10
Retroversion of uterus	3
Procidencia of uterus.....	3
Salpingitis, bilateral	2
Salpingitis, unilateral	5
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Total	30

It is probably a moderate estimate that 78 of these patients would have died of the *complications* of the fibroid tumor had they not been operated upon.

It is difficult to estimate the number of deaths which would have resulted from the symptoms produced by the tumors themselves—deaths due to hemorrhage; to chronic anemia leading to degeneration of the heart and kidneys; to pressure of the tumor upon the ureters and bowels; to malnutrition induced by the hemorrhages and by the increase of intra-abdominal pressure interfering with the functions of the alimentary canal; to the lowered vitality of the patients, increasing their liability to contract intercurrent diseases; to septicemia from necrosis of the tumors; and to thrombosis and embolism through associated phlebitis. To these must be added the risks of pregnancy and parturition when complicated by fibroid tumor. It can hardly be considered as other than moderate if we estimate that 15 of these patients would have died eventually as a result of the presence of the tumors, independent of the above complications. This would make a total of 93 deaths in the 218 cases as a result of the tumors themselves or their complications—a mortality of 42 per cent.

In estimating the number of deaths which would occur from the various complications encountered, there may be a difference of opinion as to the probable history of the special complications. It should be pointed out, however, that this would merely take away a small number from the list of deaths to add it to the list of invalids.

It is impossible to know whether my own experience with the complications of fibroids has been an average one, or whether the cases of fibroid tumor coming under my care have been more or less complicated than usual. I am not familiar with similar tables of complications of fibroid tumors based upon a definite number of cases which would afford a basis of comparison.¹

It may be urged with reason that some of the cases included

¹Martin reports the following complications and degenerations (Mar-

in this table might have been otherwise classified. The cases of cancer and sarcoma of the uterus complicating fibroids and the cases of the large ovarian tumors might perfectly well have had a different classification, and in this way the list of complications having a fatal termination would have been decreased. But even allowing for such a difference in classification, there can be no doubt that at least a third of the patients would have died as a result of the tumors or their complications.

Some of the more striking complications which have been encountered will next be considered, in order to illustrate more clearly the nature of the risks of fibromyomata of the uterus.

One undoubted case of *sarcoma* of the uterus had the following history: Mrs. G., aged 51, childless, had been in failing health for more than a year. She had had a fibroid tumor of the uterus for years, which had recently taken on renewed growth. The tumor was the size of a fetal head. Abdominal section February 2, 1893, revealed a very soft tumor of the uterus, with secondary growths in the left broad ligament. Upon subsequent microscopical examination the tumor was pronounced a sarcoma. The uterus and its appendages were removed by hysterectomy. The patient died after a few months from the rapid development of the secondary sarcoma in the broad ligament and abdomen.¹

tin, A., Pathology and Therapeutics of the Diseases of Women, Boston, 1890, pp. 268-272):

COMPLICATIONS OF FIBROID TUMORS MET WITH IN 205 CASES.

Fatty degeneration of tumor	7
Calcification of tumor.....	3
Suppuration of tumor	10
Edema of tumor	11
Cystic degeneration of tumor.....	8
Teleangiectasis of tumor	3
Sarcoma of tumor	6
Carcinoma of cervix uteri	2
Carcinoma of corpus uteri	7
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Total	57

It will be noted that he makes no reference to the condition of the appendages, and that thus his table can be compared only in part with my own.

¹I have seen a second case of undoubted sarcoma of the uterus. This was a case of recurrent spindle-celled sarcoma of the cervix. The first tumor was removed at the Woman's Hospital of Philadelphia, and the second at the Kensington Hospital for Women. Each time when the patient came under observation the tumor was necrotic, making hys-

The case of *syncytioma* had the following history: Mrs. K., aged 30, has had two children and one miscarriage, which occurred between the two labors at term. The youngest child was 30 months old when she consulted me, June 20, 1893. Menstruation was normal until nine months before she came under observation, since which time she has been bleeding almost constantly. She suffered from pronounced anemia corresponding with the history of hemorrhage. On examination the uterus was found enlarged by a tumor in the fundus. A diagnosis of fibroid tumor with probable cancer of the endometrium was made. A combined vaginal and abdominal hysterectomy was performed on June 29, 1893. A fairly normal convalescence followed. She died early in the December following, about five months after the operation. Death was due to secondary involvement of the left lung, and there were numerous small tumors under the skin, scattered over the body. When the specimen was examined after operation, a clinical diagnosis of fibroid tumor of the uterus undergoing sarcomatous change was made. The final report of the pathologist is that the case was one of *syncytioma*.¹

The two cases following were *operated upon during pregnancy*: Mrs. A., aged 38, nullipara, was pregnant two months. Shortly after becoming pregnant she discovered an abdominal tumor, which on examination proved to be freely movable and pedunculated, very soft to the touch, and was believed to be an ovarian cyst. Abdominal section was performed December 3, 1894. On delivering the tumor it was found to be a soft fibroid with a slender pedicle, which was injured in the delivery of the tumor. This made the removal of the fibroid preferable to its return, in spite of the complication of pregnancy. The pedicle was ligated and divided. The patient made a good recovery from the operation, but unfortunately aborted. Subsequently she gave birth to a living child.

terectomy inadvisable, and each time the patient refused radical operation after recovering from removal of the sloughing tumor. This sarcoma was pediculated and was not associated with a fibroid tumor.

A somewhat doubtful case is that of Mrs. W., operated upon September 19, 1895. A fibroid tumor undergoing degenerative changes was removed and a clinical diagnosis of sarcomatous degeneration was made. The pathologist reported that this was probable, but that the tumor was too necrotic for a positive diagnosis. The patient died subsequently of disease of the liver believed to have been a secondary development of the tumor.

¹McFarland, Joseph: A Case of Deciduoma Malignum. Proc. Pathological Soc. of Phila., 1901, vol. iv., p. 36.

Mrs. P., aged 37, mother of four children, suffered markedly from pressure symptoms due to a large, rapidly growing fibromyoma. Pregnancy was suspected. This was believed to add to the indication for hysterectomy because of the size of the tumor. Hysterectomy was performed June 20, 1898. Recovery was uninterrupted. Examination of the specimen showed the existence of a twin pregnancy of six weeks.

Of the 12 cases of *necrosis of the tumor*, six occurred in sub-mucous fibroids or fibroid polypi, the necrosis being due to interference with the circulation by the efforts of the uterus to throw off the tumor. In these cases the tumors were removed by operation per vaginam. Two died, one from embolism resulting from a septic inflammation antedating operation and persisting after it, the other from advanced endocarditis.

Of the 6 cases of necrosis of the tumor operated upon by abdominal section, all were in bad condition from septic absorption. All would promptly have died from septicemia without operation. Three succumbed to septicemia. One died of embolism of the brain. Of the twelve cases of necrosis, six died and six recovered, showing the extreme gravity of this condition.

A striking illustration of the fact that the *menopause* need not bring relief to a patient suffering from a fibroid tumor is the case of Mrs. C., aged 67, the mother of one child aged 40, who consulted me for the relief of intolerable bladder symptoms. She suffered constantly from tenesmus of the bladder, which had resisted long-continued treatment at the hands of others. She had suffered from hemorrhages from the uterus from the age of 35 until the menopause was established at 52. Examination showed a multinodular fibroid tumor, the pelvic portion of which had become calcareous. The subsequent investigation of the case proved that the calcareous portion of the fibroid by pressure on the right ureter had caused degeneration of the right kidney. Operation was performed March 6, 1895, at the urgent request of the patient, in spite of a bad prognosis, in the hope that the removal of the tumor might afford an opportunity to relieve the bladder symptoms. She died four days later of suppression of urine.

In this connection, and as bearing upon the behavior of fibroid tumors after the *menopause*, reference will be made to the case of a physician's wife, seen in consultation some years ago, who had suffered from the age of 35 to 53 from uterine hemorrhages before the menopause was established. Subsequently her health

improved, but she was never a vigorous woman. When about 70 years of age, after a drive on a rough country road, the tumor became necrotic. An abscess developed, which ruptured into the bowel. A drainage operation was performed, but the patient died septic.

The disappearance of fibroid tumors after the menopause and after labor is a part of the classical teaching concerning the life history of these growths. My own experience adds little in support of this teaching. No instance of a fibroid tumor having disappeared after the menopause has come under my notice. In one case, seen fifteen years ago, a fibroid tumor was said to have greatly lessened in size after labor, as compared with its size before pregnancy. No other similar case has come under my observation since. That one, having large opportunities for observation, could have had this experience indicates that the disappearance of fibroid tumors as a result of the menopause or as a result of pregnancy is not to be expected. This occurrence is merely one of the curiosities in the history of these growths.

The ages of the patients operated upon, grouped in decennial periods, were as follows:

Under 20	1
Between 20 and 30.....	6
Between 30 and 40.....	77
Between 40 and 50.....	76
Between 50 and 60.....	20
Between 60 and 70.....	7

The remaining 31 cases were operated upon per vaginam. In these cases the histories are not complete. One of them was between 50 and 60, and a number between 40 and 50.

From the standpoint of the *youth* of the patient the following are of decided interest: one, 17 years of age; one, 22; one, 24; and one, 26. The history of the youngest patient is as follows: Miss T., aged 17, began to menstruate at 13. Menstruation was regular for five months. It then ceased for two years, with the exception of two periods. She then menstruated every two or three weeks, and from July, 1890, until December, 1890, when she consulted me, she had been bleeding constantly. The patient complained of extreme debility from loss of blood. Upon examination a fibroid tumor was found choking the pelvis and extending half way to the umbilicus. Operation March 23, 1891.

From the standpoint of the *age* of the patient it is of great interest that 21 patients, including one operated upon per va-

ginam, were between 50 and 60 years of age, and 7 patients between 60 and 70 years of age. The oldest patient was aged 67. It will be observed that over 12 per cent of the patients were above 50 years of age when their symptoms caused them to seek relief in operation, at which time, according to the classical teaching concerning the life history of fibroid tumors, most of the patients should have regained their health as the result of the influence of the menopause. The teaching that the menopause insures the symptomatic cure of the patient does not receive much support from these figures.

It is not feasible to give the exact *age at which menstruation ceased* in patients operated upon after the forty-fifth year. A large percentage of them menstruated until they were past 50, and one as late as the fifty-fifth year. No fact in connection with the history of fibroid tumors is more evident than that the menopause is delayed for from three to ten years.

The relation of fibromyomata to *sterility* is indicated by the fact that, of the 218 patients operated upon, only 91 had been pregnant. Of the 127 who had not been pregnant a certain percentage were unmarried. This experience is in accord with the accepted belief that fibromyomata are a cause of sterility.

In the list of complications no mention was made of the question of *adhesions*. In numerous cases adhesions were a marked feature—intestinal, appendicular, and vesical. This was more especially true when the tumor was complicated by salpingitis in its various forms. Adhesions are often the cause of pain, constipation, and disorders of digestion, and a source of added risk at the operation. Extensive adhesions add definitely to the risks of operation by increasing the mechanical difficulties encountered.

The relation of fibroid tumors to *phlebitis and embolism*, both before and after operation, is well recognized. In 1889, before hysterectomy for fibroids was well established, I saw a well-marked case of phlebitis consequent upon inflammatory changes in a fibroid tumor. In 1900 a very striking case of phlebitis and embolism, with death, came under my observation. Mrs. D., aged 46, multipara, when standing upon a ladder working with the arms extended, was suddenly seized with violent pain in the abdomen, followed by collapse and grave peritonitis. After several weeks the peritonitis improved, but was followed by phlebitis involving the veins on the left side of the neck and left axilla. She apparently made a good recovery from this

condition, but some weeks later died of embolism of the brain. The peritonitis was due to torsion of a pedunculated fibroid, resulting in necrosis of the tumor.

Another death from embolism was that of a patient operated upon when septic as a result of sloughing of a fibroid polypus. She died of embolism twelve days after operation, her temperature never having become normal.

Phlebitis following operations for fibroids is quite common. The exact pathology of phlebitis is imperfectly understood. It is the tendency of surgeons to attribute all accidents following operation to infection, but in many cases of phlebitis following hysterectomy and myomectomy the rôle of infection is difficult to prove or to believe. The most prominent characteristic of a series of cases of post-operative phlebitis is that the patients almost, if not without exception are anemic and prostrated.

The most characteristic symptom of patients suffering from fibromyomata of the uterus is anemia. It is not feasible to give the exact percentage of patients suffering from marked anemia in this group of cases, as many of them were operated upon before the present methods for the study of the blood were in use. A large percentage were anemic, and some of them in the highest degree. The following case illustrates the degree to which anemia may develop as a result of hemorrhage: Miss E., aged 45, was admitted to the hospital January 16, 1901. She was markedly anemic, the skin having a waxen appearance, and her hands, ears, etc., being characteristically translucent. She had been bleeding almost constantly for months. Examination showed a number of fibroid nodules and also a small tumor of the right ovary. It was evident that the condition of the patient forbade a radical operation. The uterus was curetted on the 19th, with the hope of controlling the uterine bleeding, so that with proper feeding and treatment her blood state could be improved to the point rendering a radical operation feasible. On the 23d the examination of the blood gave the following result: erythrocytes, 2,325,000; hemoglobin, 10 per cent; poikilocytosis, marked; leucocytosis, marked, of the usual type. On February 6 the following: erythrocytes, 2,760,000; hemoglobin, 35 per cent. On March 4 the following: erythrocytes, 3,640,000; hemoglobin, 45 per cent. Miss E. was discharged March 6, 1901, with the advice that she should return for a radical operation as soon as her blood condition had somewhat improved. She was again admitted April 2, and on the 4th

hysterectomy by supravaginal amputation was performed, removing the fibroid tumors and the ovarian cyst. The blood examination on the 3d showed: erythrocytes, 3,760,000; hemoglobin, 55 per cent. The examinations of January 23 and April 3 were made with Gower's hemoglobinometer, that of March 4 with Fleischl's instrument, and that of the 6th with the instruments of both Gower and Fleischl. The pathologist's notes concerning the examination of January 23 state that the estimation of the hemoglobin was very difficult because of the excessive hemoglobinemia. The blood was a slightly turbid, reddish straw-colored liquid. After the curettage Miss E. was extremely ill. Her pulse was very feeble, and prostration was extreme. After the hysterectomy she made a good recovery.

It seems hardly credible that a patient could live with such a high-grade anemia—only ten per cent of hemoglobin. Had the blood count been made before the curettage was done, it is doubtful whether it would have been undertaken, as the danger of administering ether under such conditions is well recognized.

In others of the graver cases of anemia the result was not so fortunate. The risks of shock, of edema of the lungs, and of septic infection, after operation, are all increased in anemic patients.

The attitude of those advocating what they call the conservative plan of treatment of fibroid tumors, but which would more properly be called the expectant mode of treatment, with reference to hemorrhage from fibroids, it is difficult to appreciate. They agree that when a patient has become profoundly anemic from hemorrhages operation is indicated, but oppose operation before that state has been reached. It would seem much more logical to operate early, thus preventing the development of a profound degree of anemia, saving the patient months or years of invalidism, lessening the immediate risk of the operation itself, and very greatly shortening the period of convalescence after operation. When anemia has become profound and of long duration, at times it is incurable, or the usually appropriate treatment must be continued many months to bring about a cure. The secondary effects of chronic anemia are also difficult to cure and should therefore be avoided. This is especially true of the effects upon the nervous system.

The progressive anemia often engendered by fibromyomata of the uterus has a distinct bearing upon the operative mortality. In certain cases in which a palliative line of treatment has been

followed, it may become imperative to operate, despite the transgression of Mikulicz's rule: "Never operate in any case when the hemoglobin is below thirty per cent."

A certain proportion of deaths also results from thrombi formed in the vessels of the tumor, which, becoming detached, produce emboli and infarctions in the lungs and other viscera. Besides these alterations in the blood, degenerative changes in the form of fatty degeneration, brown atrophy, hyaline degeneration and atheroma, have been found in the walls of the heart and blood vessels in numerous cases. Over fifteen years ago Hofmeier¹ collected seven cases of uterine fibromyoma, in one of which sudden death resulted from pulmonary embolism, in two from a high-grade fatty degeneration, and in four from brown atrophy of the heart muscle.

In a number of my own fatal cases the immediate cause of death was the rapid onset of pulmonary edema. Whether in these cases the pulmonary edema was an extension of an embolic process in the lungs, or from myocardial degeneration, I am unable to say, as it was difficult to secure thorough postmortem examinations.

Carcinoma and *fibroma* being such common diseases, it would be expected that they should frequently coexist in the uterus. In proportion to its relative frequency the adenocarcinoma of the uterine body is more often found in this association than is the more common squamous epithelioma of the cervix. That the irritative action of a fibroma should predispose to the development of the adenocarcinoma would seem slightly less plausible than that laceration of the cervix should predispose to that of epithelioma of the cervix. Clinical experience and embryological studies both refute the idea, however, that the benign tumor may undergo carcinomatous transformation. Indeed, even the penetration of the capsule of the fibroid by an adjacent carcinoma is extremely rare. In two of my cases the carcinoma had reached the capsule, but there was no tendency to penetrate the substance of the fibromyoma. Von Recklinghausen observed several cases of adenomyomata in which the glandular tissue present seemed to have acquired malignant properties.

Sarcomatous degeneration of fibroids would seem to be possible, yet the close histological similarity between fibro- and spindle-

¹Hofmeier, M.: Zur Lehre vom Shock (Ueber Erkrankungen der Circulations-Organen bei Unterleibsgeschwülsten). Zeitsch. f. Geburtsh. u. Gynäk., 1885, Band xi., p. 366.

celled sarcoma and fibromyoma renders it difficult for the pathologist to determine whether a given growth has been malignant from its inception or has been the result of a sarcomatous degeneration in a fibroid. It is generally accepted, however, that the benign tumor may undergo this transformation.

Of the cases of epithelioma of the cervix complicating fibroid tumor of the uterus, one is of special interest, as it occurred in a virgin. Miss H., aged 54, was admitted to the hospital March 26, 1901. She had been in failing health for a year, the prominent symptoms being increased menstrual flow, dyspeptic symptoms, increasing debility, inability to retain urine, and neurasthenia. On examination there was found an epithelioma of the cervix complicating multiple fibroid tumors of the uterus. The epithelioma was first curetted and burned away. Total hysterectomy was performed on the 28th. An enlarged gland was found over the iliac vessels. This was also removed, and under microscopical examination proved to be a secondary squamous-celled epithelioma. A good recovery followed, with the disappearance of all symptoms.

According to the classical teaching concerning the history of fibroid tumors, a fatal termination is very rare. At the present time it is not difficult to understand why this is true, because when the condition of patients suffering from fibroid tumors becomes grave, whether from hemorrhage, repeated attacks of peritonitis, disturbances of the digestive organs, of the vascular system, or of the urinary organs, they are submitted to operation. Patients operated upon when in bad condition swell the mortality of operations, and also greatly increase the list of those making poor recoveries after operation. Doubtless in the future the number of cases dying directly as a result of fibroid tumors or their complications will be less than in the past, because in a larger percentage an early operation will be performed. Nevertheless numerous cases of death from fibroid tumors can be found in the literature. Bishop¹ reports 37 fatal cases which he has collected.

If the cases of fibroid tumor of the uterus which have come under my observation can be taken as representing these growths as a class, it is a fair conclusion that death will result in more than one-third of the cases. In more than one-fourth of the cases the result will be chronic invalidism. This percentage of

¹Bishop, E. S.: *Uterine Fibromyomata*, 1901, pp. 27-31.

invalids would be increased by the percentage of cases ultimately ending in death, so that from one-half to two-thirds of the patients having fibroid tumors which have come under my observation have been confirmed invalids. Of the remainder, about one-third, but few have not been incommoded to a considerable degree as a result of the presence of the tumors. The percentage of cases in which tumors have been found more or less accidentally is quite small. This estimate of the gravity of fibroid tumors is radically opposed to the classical teaching upon this point.

It is gratifying to contrast the results which can be secured through the resources of modern gynecology with those which would follow an expectant plan of treatment. The mortality of hysterectomy and myomectomy is variously estimated at from two to ten per cent. In a series of 345 cases published by myself in 1897,¹ the mortality of hysterectomy by supravaginal amputation in the hands of five American gynecologists was 4.9 per cent; in a series of 100 total hysterectomies the mortality was 10 per cent. In a collection by Olshausen² of 806 cases of supravaginal amputation, the mortality was 5.6 per cent, contrasted with a mortality of 9.6 per cent in a collection of 520 cases of total extirpation. According to Bishop,³ Mr. Christopher Martin reports 35 cases of total extirpation, with a mortality of 2.8 per cent; Doyen 60 cases, with a mortality of 2.6 per cent; A. Martin 81 cases, with a mortality of 7.4 per cent. The advocates of vaginal hysterectomy for fibroid tumors report equally as good, if not better, results. The results of myomectomy indicate that enucleation is a more dangerous operation than hysterectomy, although in the hands of trained men the results are excellent. Kelly⁴ reports 97 myomectomies with 4 deaths. This is to be contrasted with 307 hysteromyomectomies with 15 deaths, or a mortality of 4.8 per cent. MacMonagle⁵ reports 65 cases of myomectomy with no death.

From these reports the estimate that the mortality of hyster-

¹Noble, Charles P.: The Development and the Present Status of Hysterectomy for Fibromyomata. *Trans. Am. Gynec. Soc.*, 1897, vol. xxii., p. 59.

²Olshausen, R.: Comparison of Results in Supravaginal Amputation and in Total Extirpation of the Uterus. *Veit's Handbuch der Gynäkologie*, 1897, p. 713.

³Loc. cit.

⁴Kelly, H. A.: Abdominal Myomectomy. *Trans. Am. Gynec. Soc.*, 1898, vol. xxiii., p. 223.

⁵MacMonagle, Beverly: Private Communication of December 29, 1898.

ectomy and myomectomy varies from two to ten per cent, depending upon the gravity of the cases, upon the operator, and upon the environment in which the operations are done, is quite justified.

We are now able to contrast the mortality of fibroid tumors, including that of their degenerations and complications, with the mortality of operation—upward of $33\frac{1}{3}$ per cent with less than 10 per cent: also the morbidity incident to the history of fibroid tumors as compared with that which follows operation, in which the comparison is very much in favor of operation. From all the facts presented the conclusion is inevitable that the proper treatment of fibroid tumors of the uterus is their early removal. Early operation not only greatly lessens the mortality, but, what is perhaps of more importance, it saves the long period of invalidism which is otherwise unavoidable.

Believing that the best treatment of fibroid tumors in general is their early removal, the question remains whether there are no exceptions to this rule. The best answer to this is that each case must be decided upon its merits. It is my individual experience that small multinodular subperitoneal fibroids in women 40 years of age or more are the least apt to grow and to cause serious symptoms. Conversely, submucous and intramural fibroids in younger women are the most apt to develop and to cause serious trouble. It has been my experience to meet with but few fibroids which were not producing symptoms, and it is therefore my belief that the percentage of cases is small in which operation is not more advisable than expectancy.

A CONTRIBUTION TO EXPERIMENTAL URETERO-CYSTOSTOMY.

BY

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(With seven illustrations.)

THE perfected technique of modern surgery has warranted operative attack on almost every form of pelvic pathological condition, in consequence of which the ureters, so frequently involved in neoplasms and inflammatory products, are often sub-

ject to varying degrees of injury. Since the abundant experimental and surgical work of recent years has established the principles for the relief of these conditions, with conservation of existing organs, Simon's¹ pioneer operation in 1869, of removing a normal kidney, is now deservedly considered an unsurgical and practically unjustifiable operation, provided sufficient ureter remains to perform some kind of anastomosis. When the severed ends can be easily approximated it would seem anatomically imperative to select uretero-ureterostomy, though in this case some surgeons prefer a bladder implantation, as more easily performed and less liable to subsequent complications.

Notwithstanding the abundance of experimental work in uretero-enterostomy and a number of successful operations, the constant menace of intestinal infection being conveyed to the kidney precludes this as an operation of choice.

Unless the ureter can be united in continuity, uretero-cystostomy remains as the preferable operation for the cases under consideration. It will be of interest to review the development of this operation and the different methods of its accomplishment.

In 1875 Von Nussbaum² obtained an abdominal fistula of the right ureter following the removal of an ovarian cyst. He evacuated a reservoir of urine at the angle of the uterus by a trocar and canula passed through urethra and bladder, later inserting successively glass and rubber drainage tubes from the fistula to the bladder. Though a haphazard procedure, a permanent opening remained into the bladder and the fistula closed. A similarly favorable result was obtained by Hegar³ after trying in vain to unite the severed ureter to the bladder.

Maclaure⁴ states that Lanelongue⁴¹ displayed the first step toward uretero-vesical anastomosis in a palliative operation in which he made an incision in the posterior wall of the bladder, through which a sound, introduced into the bladder by way of the urethra, was passed into the ureter.

Paoli and Busarchi⁵ experimented on four dogs in 1888, the first two dying on the tenth and twentieth days respectively from urinary infiltration and abscess, the others proving successful. They enlarged the end of the ureter by an incision, opened the posterior wall of the bladder to the extent of two centimetres, and in it fixed the ureter by four sutures passing through peritoneum and muscles, the former being further united by Lembert sutures.

In 1886 Pawlik⁶ passed an elastic catheter into a severed ureter by way of the urethra, bladder, and the ureteral opening, over which the separated ends were united with good union of the ureter. But it became so encrusted with urinary salts that, when withdrawn on the seventh day, the ureter was again torn. After experiments with this operation on dogs, Thomson⁷ condemned it on account of technical difficulties and incrustations of the catheter.

Fenger⁸ states that Baum in 1892 successfully implanted the ureter in the bladder, extraperitoneally, for uretero-vaginal fistula. Later Witzel⁹ described a successful extraperitoneal operation which previous attempts had failed to cure: Through an abdominal incision the peritoneum was incised over the ureter at the branching of the iliac vessels and again at the broad ligament where the ureter was severed. Being drawn out of the upper incision, it was seized by forceps and passed beneath the peritoneum to the right vesical region above the linea innominata. All peritoneal openings being closed, the bladder was drawn to the right and the ureter implanted in it extraperitoneally.

In a case of uretero-cervical fistula involving the right ureter, Sanger¹⁰ loosened the ureter from scar tissue through an abdominal incision, placed it behind the peritoneum dissected from the pubis and right pelvic wall, covered all raw surfaces with peritoneum, and closed the abdominal cavity. Forceps inserted into the urethra were then passed through the bladder wall and grasped the end of the ureter extraperitoneally, holding it in position till united to the bladder by several layers of sutures, recovery following. Sanger recommends, whenever possible, to perform the extraperitoneal or combined intra- and extraperitoneal operation.

Kelly¹¹ reports a similar case in which drainage was attempted through the vagina, but the bladder was punctured and other complications arose, a fatal result following, in six days, from pyelonephritis. Also Amann¹² describes two cases of uretero-cervical fistula in which he severed the ureter deep in the pelvis, transplanted it along the edge of the latter, behind the peritoneum, so as to reach the bladder, which was dislocated in the same direction to meet it, thus making the anastomosis extraperitoneal.

Kayser¹³ had a urinary fistula following a hysterectomy through a sacral incision, which was treated by dilating the

fistulous track, passing forceps through the urethra and the opening in the bladder wall to grasp a suture attached to the ureter, by which the latter was held in place for the bladder anastomosis. In spite of tension a good result followed.

From his experiments on the cadaver Van Hook¹⁴ has suggested that, when the ureter is left too short for anastomosis, it be implanted into the abdominal wall and later joined to the bladder extraperitoneally by incising the parietes down to the bladder, raising a flap from the latter by two parallel incisions, which is to be joined to the ureteral extremity, thus forming a new extraperitoneal ureter. As yet there is no record of this fanciful plan having been put into execution.

Among the earliest successful cases of intra-abdominal implantation was one by Novaro¹⁵ in 1893, of uretero-vaginal fistula following hysterectomy, in which he separated the ureter by abdominal incision and implanted it near the original site.

In the case of a ureter resected by Penrose¹⁶ during an operation for carcinoma, a fine silk suture was passed one-third of an inch from the edge, on opposite sides of the ureter, then into the bladder opening, through the wall of the latter, and tied on the serous surface, thus retaining the ureter in place. Loose peritoneum was united about the bladder opening.

Baldy¹⁷ reported two cases of severed ureter which were attached to the bladder by catgut suture with a needle at each end, passing through the ureteral wall from without inward, thence by bladder incision through the bladder wall, and tied on its exterior, additional sutures being placed about the junction of ureter with bladder. Later he reported¹⁸ a severed ureter which was approximated to the bladder with difficulty by aid of two similar catgut sutures passing one-eighth of an inch from the edge of the ureter and the same distance from the edge of the bladder incision. To relieve tension the bladder was attached to the pelvic wall near the stump of the uterine artery.

Krug¹⁹ adopted a like procedure with two catgut sutures in the ureter, but each passed only once through the ureteral wall. He closed the bladder incision by four tiers of sutures.

Rouffart,²⁰ in a case of uretero-vaginal fistula, opened the bladder by cutting down on a sound passed through the urethra, and devised a combined sound with forceps attached to the extremity, by which the ureteral end could be grasped, the sound resting in the lumen of the latter, and be held *in situ* during attachment to the bladder.

A similar measure was adopted by Krause,²¹ who first incised the bladder on a sound introduced through the urethra, and, seizing the ureter by forceps passed into this incision by the same route, retained it in place till secured by several layers of sutures. Kelly²² likewise passed forceps through the bladder wall by way of the urethra and grasped the ureter, after a loss of four centimetres in length, following vaginal hysterectomy for carcinoma. In order to more easily approximate the ureter and bladder, he loosened the latter from its pubic attachments, by which manœuvre he says three to five centimetres in distance can be gained. The two organs were united by four silk sutures.

Noble²³ took advantage of this procedure during the performance of a uretero-ureterostomy with the loss of one and one-half inches of ureter, when he loosened the bladder from both pubes and vagina so that the divided ends of the ureter could be approximated.

During a hysterectomy Baldwin²⁴ excised one and one-half inches of the ureter, grasped the proximal end by forceps introduced through the urethra and bladder, thus retaining it in place during the anastomosis. Tension was relieved by attaching the bladder to the stump of the broad ligament close to the implantation.

Bayer²⁵ describes a technique by which he passes forceps through the urethra and bladder to grasp three silk sutures in the ureter, by which traction is exerted till sutures are applied.

A somewhat novel procedure was adopted by Calderini²⁶ in a case of uretero-ureteral fistula, in the use of the Baori²⁷ button, devised for uretero-intestinal anastomosis. The ureteral section of the button being in place, the other half was introduced through an incision into the bladder, and when the halves were approximated the whole was concealed extraperitoneally. In order later to extract the button a ligature attached to it was brought out of the urethra. It did not loosen for two months, and then was removed by incising and dilating the urethral orifice to the size of the forefinger. The intervening cystitis was soon relieved and a cure resulted.

Kelly²⁸ suggests the use of a steel sound with the end bent at an obtuse angle, which enters an opening in the bladder, and thence, through the incision for the anastomosis, into the ureter, where it is retained by a ligature fitting a groove at the tip. By means of this sound the ureter is held in place during suturing to the bladder, and then released by cutting the ligature encircling its tip, after which the bladder incision is closed.

Büddinger²⁹ varies the technique of implantation by employing Witzel's principle for gastrostomy. He secures the ureter in the bladder opening by two sutures passing through the bladder and ureteral muscles. Then it is placed flat against the bladder wall and the peritoneum drawn over it by four sutures grasping the latter on each side and passing over the ureter, thus enclosing the latter in a sheath of peritoneum. He claims an advantage in this imitation of Nature.

Reynolds³⁰ reports a persistent uretero-vaginal fistula cured by Dudley's operation, which had resisted previous attempts at anastomosis because tension tore out the sutures. A pair of forceps was passed through the urethra, one blade entering the ureter while the other grasped the adjacent bladder wall so as to retain the two in coaptation. Many layers of sutures were applied to the surrounding vaginal tissues. The forceps was removed on the twentieth day without resulting slough or bladder irritation and with perfect result.

This review of the literature shows the successful establishment of the operation of uretero-cystostomy under easy approximation of ureter and bladder. What measures are to be adopted when they are separated a greater or less distance, in order to avoid a nephrectomy or the procedure followed by Füh, ³¹ who severed the right ureter above the brim of the pelvis in removing a large fibroid, and, concluding it could not be implanted in the bladder, tied a ligature about the extremity, with subsequent recovery of the patient in spite of resulting hydro-nephrosis and atrophy of the kidney?

In addition to the loosening of the bladder from the pubes, already mentioned, we have Bovée's³² suggestion of dislocating the kidney downward with resulting relaxation of the ureter, which was carried out successfully on dogs. The natural elasticity of the ureter is said to permit a stretching of more than two inches.

With these aids at our command a successful anastomosis would seem possible with a considerable loss of ureter, if the latter could be retained in apposition to the bladder in spite of a certain amount of tension. Though an attempt at union of these organs under this condition has been characterized as unsurgical, several of the above cases have been reported as successful, though they were anastomosed with some degree of tension.

In the following experiments an endeavor has been made to

determine the form of suturing that will most securely hold the ureter to the bladder in the presence of tension on the former, and to observe the relative powers of resistance of different sutures applied to the ureter.

A brief reference to the *anatomy of the ureter* shows that its structure presents three coats: internal of mucous membrane, middle of muscular, and external of fibrous tissue, the two latter being concerned in this discussion.

Gray³³ states the external fibrous coat is present throughout the length of the ureter, continuous with the capsule of the kidney and fibrous structure of the bladder. Quain³⁴ likewise refers to the fibrous coat, which Kirke³⁵ mentions as "tough, fibrous, and elastic." Morris³⁶ designates it as external connective tissue.

Authorities differ as to the number and arrangement of the muscular layers. Gray³³ describes an external longitudinal, middle circular, and inner longitudinal less distinct, and states that Kölliker finds the latter only in the neighborhood of the bladder. Quain³⁴ and Kirke³⁵ mention two longitudinal and a middle circular layer, while Morris³⁶ gives only an external circular and internal longitudinal layer. Likewise Landois and Sterling³⁷ give an inner coat of strong muscular fibres and an external circular. But Fort³⁸ includes no internal longitudinal layer, stating that the external longitudinal and middle circular layers are really in one plane and so intercrossed in all directions as to form one plexiform covering. This arrangement of two layers is also described by Gerrish.³⁹

Thus the majority of authors agree on the presence of an internal longitudinal layer, but are about evenly divided as to the external.

In the bladder all authorities describe an abundance of strong external muscular fibres running antero-posteriorly, and beneath this a layer of circular or oblique fibres; while Quain,³⁴ Gerrish,³⁹ and Kirke³⁵ mention an additional thin internal longitudinal layer.

It is obvious that the firmest union of the two organs will be obtained by sutures seizing transversely the strong longitudinal muscular fibres of each. The difficulty of grasping the internal fibres of the ureteral wall with the needle, at the same time avoiding the lumen, is evidenced by Morris³⁶ dimensions of one-twenty-fifth inch as the thickness of the ureteral wall and one-fiftieth inch for the muscular layers, the longitudinal fibres

being only a portion of the latter. The same difficulty does not hold with the bladder, the normal thickness of whose wall, according to Morris,³⁶ is one-eighth inch, the strong longitudinal fibres being external and readily seized.

Ureteral Experiments.—With each of ten ureters four sutures were successively employed. The first was passed transversely through the ureteral wall, penetrating the lumen; the second longitudinally, also penetrating the lumen; the third transversely through the wall, but escaping the lumen; the fourth longitudinally, also avoiding the lumen.

The ureter being suspended by one end, a receptacle was attached to the suture, into which water was poured until the latter tore loose from the ureter. The bucket and water were then weighed. The average weight sustained by the first suture was two pounds six ounces; by the second, one pound three ounces; by the third, one pound seven ounces; by the fourth, twelve ounces. The operation for uretero-cystostomy commonly recommended in the text books, as is described and illustrated by Kelly,⁴⁰ employs the fourth suture of this classification, the weakest that can be used to withstand tension. While this gave way under a weight of twelve ounces, the first and strongest sustained two pounds six ounces.

Table I. presents the details for each suture.

TABLE I.

	Weight required to tear out sutures passed into the lumen of the ureter.		Weight required to tear out sutures passed through muscles but escaping the lumen.	
	Transverse suture.	Longitudinal suture.	Transverse suture.	Longitudinal suture.
1	2 lbs. 14 ozs.	1 lb. 11 ozs.	1 lb. 1 oz.	1 lb. 11 ozs.
2	2 " 10 "	1 " 6 "	1 " 7 ozs.	9 "
3	2 "	1 "	8 "	8 "
4	2 " 2 "	1 " 3 "	1 " 12 "	8 "
5	2 " 6 "	1 " 12 "	1 " 10 "	1 " 8 "
6	2 " 8 "	1 " 2 "	1 " 12 "	1 " 4 "
7	2 " 9 "	1 " 2 "	1 " 2 "	1 "
8	1 lb. 13 "	8 "	1 "	8 "
9	2 lbs 6 "	9 "	2 lbs.	7 "
10	2 " 10 "	1 " 9 "	2 " 4 "	9 "
Average	2 " 6 "	1 " 3 "	1 " 7 "	12 "

Uretero-Cystostomy on the Cadaver.—The following opera-

tion has been performed as embodying the above suggestions and offering the firmest union between the two organs.

An incision an inch long is made, in an antero-posterior direction, through the bladder peritoneum, which is dissected to each side, exposing the underlying musculosa. At the distal end an opening is made into the bladder of sufficient size to receive the ureter. A fine silk ligature is now passed through the muscular wall of the bladder, from one-quarter to three-eighths inch above the opening, which also grasps the ureteral wall, penetrating the lumen, at such a distance from the end of the ureter as to permit it later to enter the bladder. Before tying this a second suture is passed in a similar manner just above the bladder opening. After these are tied the end of the ureter is inserted into the bladder and two additional sutures are applied in a like manner at the edge of the bladder opening, firmly grasping the bladder wall and penetrating the ureteral lumen. The reflected peritoneum is now drawn over the ureter by interrupted silk sutures, placing the ureteral sutures extra-peritoneal.

In order to make a fair comparison between this, *the oblique implantation*, and that commonly employed, *the direct implantation*, the following operation was also performed on the same bladders. A small incision was made through the bladder wall, into which the ureter was directly inserted. It was retained by four silk sutures, as in the above operation, which secured a firm hold on the bladder muscle and grasped the ureter transversely, entering the lumen. Though this is not the ureteral suture commonly used, it was applied here in order to make the conditions the same for each experiment.

The ureter with bladder attached was suspended by its proximal end or by the kidney when present. The bladder was filled with water and a receptacle fastened to it, to which water was added till ureter and bladder separated. Bladder, bucket, and water were then weighed.

The average weight sustained by the oblique implantation in five bladders was three pounds five ounces, while that by the direct was two pounds six ounces. A direct implantation in which any suture had been used other than that penetrating the lumen would have given a much smaller average than in this case.

In Experiments II. and IV. with the oblique implantation, the ureter itself was torn across under weights respectively of three pounds eight ounces and four pounds eight ounces, leaving the

end still attached to the bladder. In all cases the sutures tore out of the ureters, remaining attached to the bladders.

As the same number of sutures was employed in the same manner in each case, the greater strength of the oblique than the direct implantation seems due to the distribution of the sutures. In the former they grasp the muscular fibres at different planes on the ureter, while in the latter all are applied at one level, bringing the strain of all on the same set of circular fibres and constricting a large portion of the longitudinal fibres at one plane.

TABLE II.
OBLIQUE IMPLANTATION OF THE URETER.

	Kidneys.	Weight required to tear ureter from bladder.	Original length of ureter.	Length at time of tearing from bladder.	Extent of ureteral stretching.
1	Present.	2 lbs. 3 ozs.	10 ins.	11 ins.	1 in.
2*	Absent.	3 " 8 "	$8\frac{1}{4}$ "	$9\frac{1}{2}$ "	$\frac{3}{4}$ "
3	Present.	3 "	$11\frac{1}{2}$ "	$12\frac{1}{2}$ "	1 "
4*	Absent.	4 " 8 "	8 "	$8\frac{3}{4}$ "	$\frac{3}{4}$ "
5	Absent.	3 " 6 "	7 "	$7\frac{1}{2}$ "	$\frac{1}{2}$ "
Average.		3 " 5 "	$8\frac{13}{20}$ "	$9\frac{17}{20}$ "	$\frac{4}{5}$ "

TABLE III.
DIRECT IMPLANTATION OF THE URETER.

	Kidneys.	Weight required to tear ureter from bladder.	Original length of ureter	Length at time of tearing from bladder.	Extent of ureteral stretching.
1	Present.	1 lb. 12 ozs.	10 ins.	$10\frac{3}{4}$ ins.	$\frac{3}{4}$ ins.
2	Absent.	1 " 14 "	$9\frac{1}{2}$ "	$10\frac{1}{4}$ "	$\frac{3}{4}$ "
3	Present.	1 " 10 "	11 "	$11\frac{1}{2}$ "	$\frac{1}{2}$ "
4	Absent.	3 lbs. 10 "	$8\frac{3}{4}$ "	$7\frac{1}{4}$ "	$\frac{1}{2}$ "
5	Absent.	3 " 4 "	9 "	10 "	1 "
Average.		2 " 6 "	$9\frac{13}{20}$ "	$9\frac{19}{20}$ "	$\frac{7}{10}$ "

* The ureter was torn across and the end remained attached to the bladder.

The elasticity of the ureters is indicated in Tables II. and III., where the original length of each is noted and the lengths to which they have stretched at the time of separation. This

gain in length varied from one-half inch to one inch, according to the original length of the ureter and the weight sustained. Thus it would seem we could depend upon stretching a shortened ureter within these limits without endangering its integrity, but the above-quoted gain of two inches or more, said to be available, is not confirmed.

Uretero-Cystostomy on Dogs.—The operation performed was as follows: After exposing the bladder by an abdominal incision, the ureter was grasped by forceps on the inner side of the lateral ligament, near its insertion into the bladder, ligated and severed. It was then stripped from its peritoneal covering for a distance corresponding to the length to be excised, a traction suture passed through it at this limit, and the desired amount removed, a small cut being made in the lower edge of the proximal end. An incision less than one inch in length was made through the bladder peritoneum, a little posterior to the dome of the fundus, on the lower surface, in the direction in which the ureter was to be implanted. After dissecting the peritoneum laterally, a small opening was made into the bladder at the distal extremity of the incision and the mucosa grasped by a pair of fine forceps. Two sutures of fine black silk were passed through bladder musculosa and the entire ureteral wall, being so placed as to permit the end of the latter to project into the bladder. By aid of the traction suture the two organs were approximated while the sutures were tied.

Guided by a grooved director, the needle on the traction suture was passed into the bladder and out through the bladder wall, by which the ureter was held in place while one more silk suture was passed through the bladder muscle and ureteral wall at the edge of the opening. The deflected peritoneum was united by interrupted sutures. The traction suture was pulled out after cutting one strand. A purse-string suture could be drawn about this point of bladder puncture, if desired, but is unnecessary in the dog.

The ureters were not shortened in the first two dogs, which were used to develop the technique. Comparatively short sections can be excised from the dog's ureter, because it runs in a direct line to the bladder without making the pelvic curve found in man.

The accompanying figures, 1, 2, and 3, illustrate the steps of the operation.

Experiment I.—February 17; mongrel; male; fifteen pounds. The right ureter was implanted in the fundus as described above. The animal presented a normal appearance till the twentieth day, when he escaped from the kennel and was not recovered.

Experiment II.—February 24; fox terrier; male; twenty pounds. After ligating the right ureter it was anastomosed into the fundus. On the forty-eighth day the animal was killed. The autopsy revealed abundant adhesions at the site of the operation. The implanted ureter was firmly attached to the

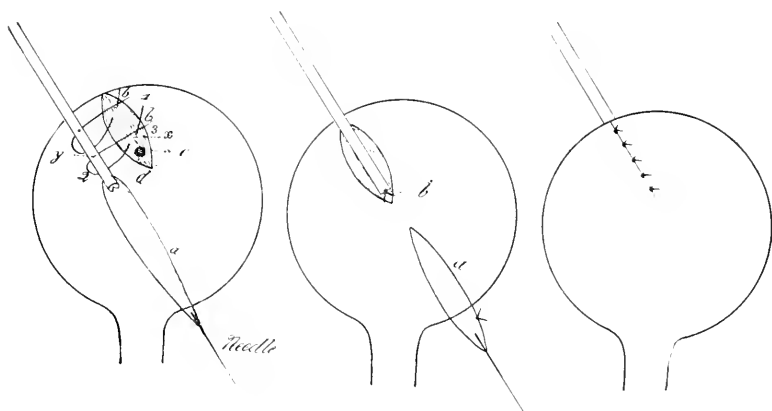


FIG. 1.

FIG. 2.

FIG. 3.

FIG. 1.—*a*, traction suture; *b*, sutures between bladder and ureter, applied in direction 1, 2, 3, grasping bladder wall at *x* and ureteral at *y*; *c*, edges of reflected peritoneum; *d*, opening into bladder.

FIG. 2.—*a*, traction suture passed through bladder wall; *b*, third suture between bladder and ureter; the other two are concealed behind ureter.

FIG. 3.—Peritoneum united over the extraperitoneal ureter.

bladder. On the right side was hydronephrosis and the kidney atrophied to about half the size of the other. While its dimensions were $1\frac{3}{4} \times 1\frac{1}{8} \times \frac{3}{4}$ inch, the left measured $2\frac{1}{4} \times 1\frac{5}{8} \times 1\frac{1}{4}$ inches. On section, the thickness of this kidney wall was three-eighths inch, compared to one inch of the left, while the diameter of the pelvis of the affected kidney was double that on the other side.

A probe readily entered the ureter from the bladder. When the former was laid open, a distinct flexure was noticed at the bladder surface, about one-quarter inch from the ureteral mouth, and at this point began the dilated ureter.

An explanation of the condition seems to lie in the fact that,

as the ureter was not disturbed from its bed in the lateral ligament, while the end was implanted into the fundus, whenever the bladder filled with urine the ureter was flexed at its junction with the bladder, backing up the urine, which could be evacuated only when the bladder was emptied, thus bringing the

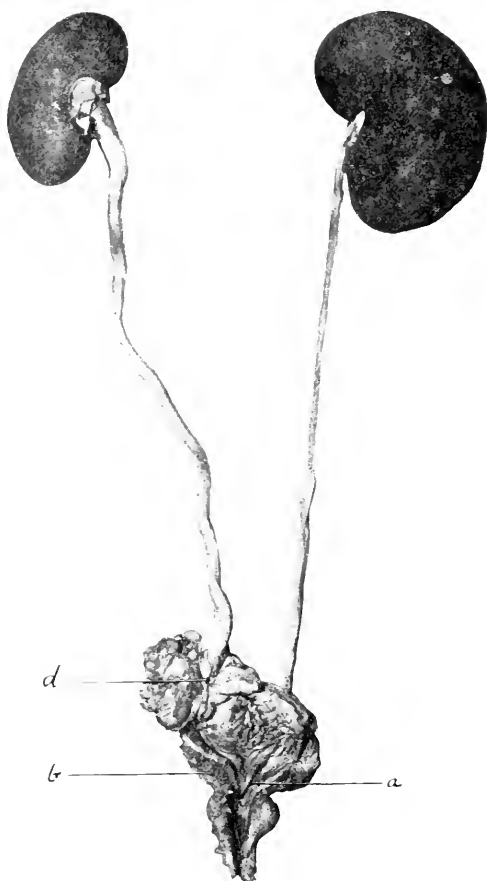


FIG. 4, Experiment II.— *a*, probe in normal left ureter; *b*, original site of right ureter; *d*, kink in right ureter at outer surface of bladder, the ureter being slit beyond this point.

whole length of the ureter into the same straight line. This condition did not occur in the subsequent cases where the ureters were separated from their peritoneal coverings and sections excised.

Microscopical examination, made by Dr. R. S. Blackburn, dis-

closed, in the atrophied right kidney, marked interstitial nephritis, with obliteration of many tubules, but the collecting tubules were dilated; contraction of the Malpighian tufts, some of which were segmented or had disappeared. The left kidney presented a beginning tubal nephritis, with cells swollen and granular and slight exudation into the tubes; also a moderate degree of congestion.

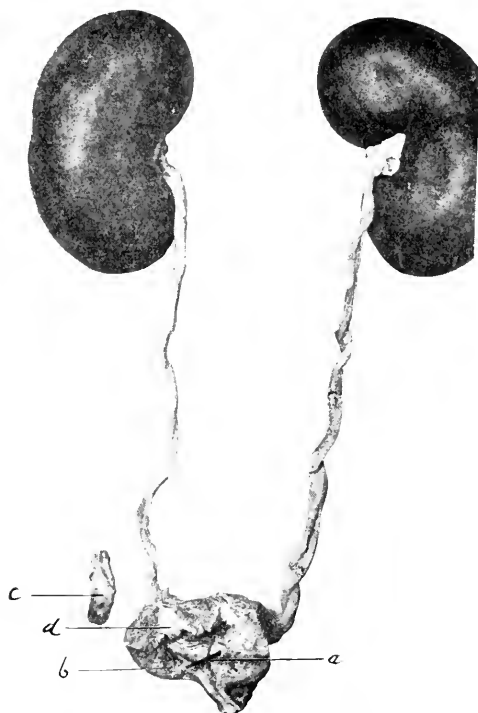


FIG. 5. Experiment III.—*a*, probe in left ureter; *b*, original site of right ureter; *c*, section excised from right ureter; *d*, right ureter laid open.

Experiment III.—March 14; collie; female; 50 pounds. One inch of the right ureter was excised and the anastomosis made near the fundus. The animal was killed on the thirty-fifth day. Slight omental adhesions were found at the site of operation. Both kidneys and ureters presented an identical normal appearance. On opening the bladder the end of the implanted ureter presented as an elevated nipple, pervious to the probe, which freely passed into the canal.

Microscopical examination revealed nothing abnormal in the kidney on the side of the operation.

Experiment IV.—March 16; English setter; male; 50 pounds. After exposing the bladder, one and one-half inches was excised

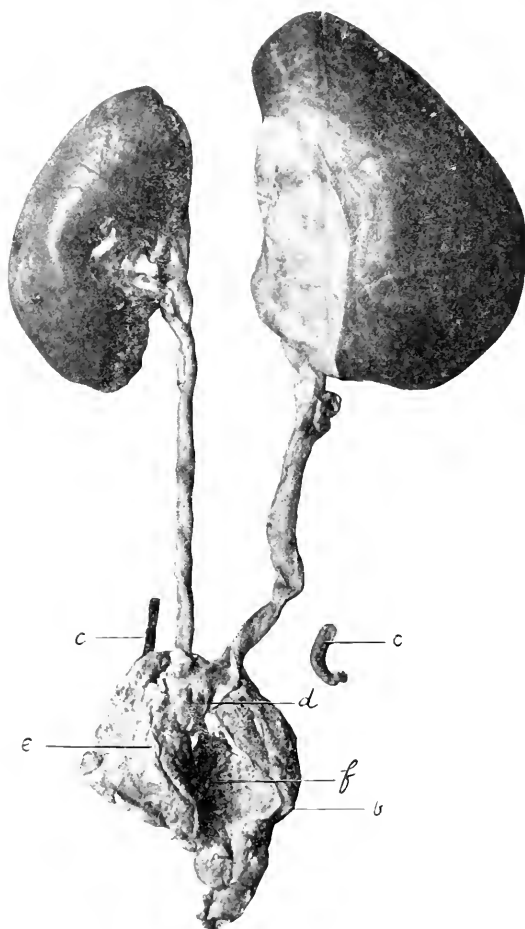


FIG. 6, Experiment IV.—*b*, original site of left ureter; *c*, sections of ureter, excised; *d*, left ureter laid open; *e*, inflammatory tumor; *f*, cavity of bladder. The present position and original site of right ureter is concealed behind the tumor.

from the left ureter and the end implanted near the fundus. On April 10, twenty-five days after the above operation, the animal presenting a normal appearance, the abdomen was again opened, one and three-eighths inches excised from the right ureter, and the end implanted at the fundus an inch to the right of the

other. The resulting tension was very marked. The left ureter presented a normal appearance. At the site of the former operation could be felt a moderate amount of induration. The left kidney was not palpated. About ten days after the second operation the animal began to display loss of activity and appetite. Soon he would not leave his kennel and later refused food. On the forty-second day after the first operation, and the seventeenth after the second, he was killed, then displaying marked prostration and emaciation.

At the autopsy the right kidney was found about twice the normal size, $4\frac{1}{2} \times 3 \times 1\frac{3}{4}$ inches, the wall hypertrophied to one and three-quarter inches thickness. It contained three ounces of red, purulent fluid. The left kidney was enlarged to about three times the normal size, measuring $6 \times 4 \times 2\frac{1}{2}$ inches. The wall was thinned out to one-eighth inch, forming a sac containing fifteen ounces of dark, purulent fluid. Both ureters were much dilated.

The bladder contained an ounce of turbid urine. At the fundus, encroaching on the under surface and lying between the ureters, whose mouths it surrounded, was a tumor about the size of the bladder, $2 \times 1\frac{1}{2} \times 1$ inch. It was hard to the touch and presented a cartilaginous sensation to the knife. A probe passed through the ureteral walls and down toward the bladder stopped in the substance of the tumor and could find no opening into the bladder. Both ureters were firmly implanted and, on slitting them open, were found unobstructed to their termination in the tumor.

Microscopical examination revealed a diffuse nephritis in the cortical portion of the right kidney, with red blood cells, leucocytes, and small round cells in the tubules and interstitial tissue. The medullary section contained masses of these cells that obliterated the features of the organ in places. Of the left kidney only the cortical portion remained, with the Malpighian tufts contracted or broken into fragments, and moderate purulent infiltration.

The bladder tumor comprised a dense mass of fibrous tissue stroma, with varying amounts of leucocytes and small round cells, extending to necrotic areas in places. There were some indefinite cellular collections, suggestive of glandular structure. It was apparently an inflammatory tumor undergoing purulent degeneration.

Experiment V.—April 11; setter; male; 60 pounds. From the

left ureter one and one-half inches was excised, from the right one and three-quarter inches. When the left was severed, a branch of the superior vesical artery was cut, the resulting hemorrhage being checked by a transfixed ligature. After anastomosing on this side, a marked edema existed over the fundus, indicating a large vein was caught in the above ligature. Troublesome bleeding occluded the field of operation on the right side, which was thought to have been arrested. At completion of the operation both ureters were on very great tension.

The animal died in thirty-six hours, the autopsy revealing the bladder fully distended by a firm blood clot, undoubtedly derived from the site of operation on the right side. Both ureters were torn loose, being unable thus early to resist the strain of the extensively dilated bladder. The sutures remained attached to the ureters, indicating a weaker hold on the bladder, contrary to the condition with the experimental work on the human bladder, where the sutures always held more securely to the latter.

Experiment VI.—April 16: fox terrier; male; 20 pounds. From the left ureter one-half inch was excised, five-eighths inch from the right, and the anastomosis conducted as above. The small size of the ureters rendered the operation very difficult. Though comparatively small sections were removed, the resulting tension was the greatest in the series. An unusual amount of blood and urine escaped into the peritoneal cavity, to which was attributed the death from purulent peritonitis thirty-six hours later.

The autopsy disclosed the bladder tightly contracted, surrounded by firm adhesions. Both ureters were securely attached, though the traction on them was still evident. No leakage was apparent at the site of operation. Kidneys and ureters presented a normal appearance, but were markedly congested in common with other organs. On opening the bladder a probe readily passed into both ureters. Between the openings of the latter was a tumor the size of a pea, shown by microscopical examination to be a polyp. The microscope revealed nothing abnormal in the kidneys except marked congestion.

From these experiments it is demonstrated that the ureter can be safely anastomosed to the bladder under a certain amount of tension, provided they are securely held together till Nature has made their union perfect by firm adhesions. If, after re-

sorting to the described methods of approximating the two organs, the shortened ureter nearly or quite reaches the bladder, it would seem justifiable to exert sufficient traction on the former to implant it into the latter, utilizing thereby a length of one-quarter to one-half inch of the ureter, which the above experiments on the cadaver have shown to be readily available.

The ultimate security of the anastomosis is due to the broad surface of adhesion between ureter and bladder, from one-

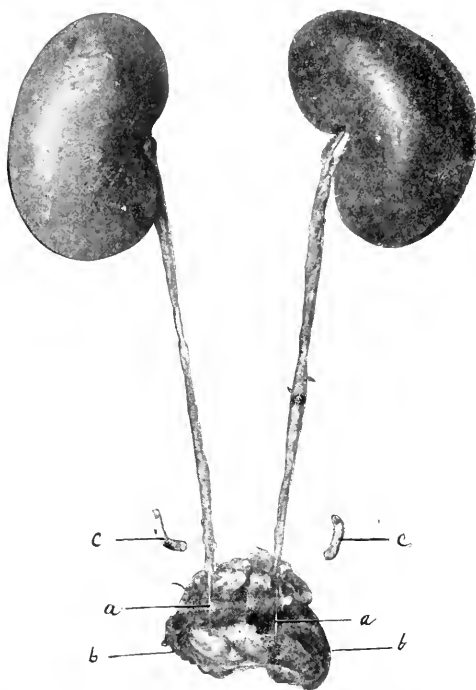


FIG. 7, Experiment VI.—*a*, probes in ureters; *b*, original sites of ureters; *c*, sections excised.

quarter to one-half inch, together with an equal overlying extent of peritoneum. This advantage is evident over the direct implantation, where the two are in firm contact for a distance equal only to the thickness of the bladder wall, which normally does not exceed one-eighth inch. If in the latter the ureter is held in place only by sutures inserted longitudinally into the muscles, it can resist but a minimum of traction and will necessarily give way to slight tension.

It has been objected that a urinary fistula would follow pene-

tration of the ureteral wall with sutures. Even if such a result followed this operation, no harm would ensue, as the fistula could lead only into the bladder itself, the whole field of operation being placed extraperitoneal. But even that would not be at all probable, since the sutures do not pass entirely through the bladder wall.

Moreover, on examining the postmortem bladders of the dogs and slitting open the ureters, no sutures were visible in the lumen of any case except in Experiment VI., where death occurred in thirty-six hours. Did they fail to enter the lumen? This seems inconceivable in view of the difficulty of avoiding it during the experiments on the cadaver, the intention of penetrating it in each instance, and the firm anastomosis obtained in all. In Experiment VI. the two sutures are observed on each side. Furthermore, in all other cases two black discolorations are visible beneath the epithelial surface, at the sites of the sutures, more or less distinct according to the time since the operation.

It is clear new epithelium has been produced over the sutures and placed them external to the ureteral lumen, sufficient time not having elapsed for this result in Experiment VI. They are thus rendered harmless, and it appears nothing is to be feared from their presence in the ureteral lumen.

In view of the ease with which the lumen is entered in experiments on the ureter, and the slight tension sustained by sutures grasping only a portion of the muscular wall, the query arises whether the lumen may not have been unintentionally penetrated in those operations reported as successful in spite of some degree of tension on the ureter.

The following conclusions are reached:

1. It is practicable to anastomose the ureter to the bladder under tension if the two are securely held in apposition till firm adhesions form.
2. This relation can be attained by the above-described method of oblique implantation.
3. An additional length of one-half to one inch can be safely obtained by traction on the ureter.
4. The presence of a ligature in the lumen of the ureter is not injurious, because Nature conceals it behind new epithelium.

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THE CONSERVATION OR PRESERVATION OF THE OVARIES
AND FUNCTIONATING UTERINE TISSUE IN THE
OPERATION OF HYSTEROMYOMECTOMY.¹

BY

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(With one illustration.)

THE treatment of myomata, fibromyomata, or fibroid tumors of the uterus has followed in its development the growth of abdominal and pelvic surgery. In the days when celiotomy was a dangerous operation the advice given by teachers of gynecology was: to watch the uterine myoma, never operate, treat symptoms, and trust to the menopause for cure. When salpingo-oöphorectomy could be safely performed, this was the treatment practised. Salpingo-oöphorectomy was in turn replaced by hysteromyomectomy with retroperitoneal treatment of the stump, which now for ten years has remained the operation of election in the large majority of myomata requiring radical treatment. The perfection of surgical technique, and better understanding of the principles of antisepsis and asepsis, during the last few years has resulted in greatly reducing the danger of this operation. I think it may be truthfully said that the mortality of hysteromyomectomy in a long series of cases, as performed by the best operators in this country, is often as low as two per cent. This radical method of operation having reached such a degree of success, the surgeon seems to have turned his attention to the development of more conservative methods of treatment of these tumors. The result of this effort has been that during the last three or four years many surgeons have advised and practised enucleation of myoma or myomata of a certain class, leaving the uterus, tubes, and ovaries intact and thus preserving the functions of these organs. This latter operation, myomectomy, is much more dangerous than hysteromyomectomy, and is for this and other reasons condemned by

¹Read before the Section on Gynecology, College of Physicians of Philadelphia, May 16, 1901.

many of the best surgeons, but there is no doubt that its performance is safe and warrantable in a few cases.

Therefore the two operative methods which are now advised and practised for the removal of myomata of the uterus through an abdominal incision are hysteromyomectomy and myomectomy.

The selection of either the one or the other of these operations in a given case, where the woman is young, has not reached the menopause, is dependent upon the extent of pathological destruction of the uterus by the tumor and the presence or absence of associated disease of the tubes and ovaries. Myomectomy, according to the strongest advocates of this operation, is applicable only to isolated pedunculated tumors, and some isolated sessile, interstitial, or broad-ligament growths so disposed that they can be readily excised or shelled out of their bed without undue injury or loss of uterine tissue. It is also necessary that the tubes and ovaries be normal. All myomata not coming within this class are removed by the operation of hysteromyomectomy, in which operation the uterine body to the internal os or including part of the cervix, and both tubes and ovaries, are excised.

About a year ago it occurred to me that there must exist a class of myomata of the uterus where the actively conservative operation of myomectomy could not be performed, the destruction of tissue by the tumor was too great, and the actively radical operation of hysteromyomectomy, as now performed, unnecessarily removed functioning uterine tissue and normal tubes and ovaries. The class of myomata which I refer to are those which destroy the upper three-fourths, two-thirds, or less of the uterine body, and the tubes and ovaries to either side are normal. The method of operation which suggested itself to me was to leave both tubes and ovaries intact, both ovaries or one ovary, depending upon the pathological condition of these tissues, and to amputate the uterus at the highest possible point, so that a portion of the uterine body lined with corporeal endometrium, even though it be small in amount, would be left in the stump.

The object of this operation would be the conservation of normal, at least clinically normal, ovaries and uterine tissue to retain the physiological relation between these tissues, thus preserve the functions of ovulation and menstruation, and prevent the artificial menopause and its sequelæ. Further, there is a growing belief that the ovary secretes a substance which is ab-

sorbed and consumed in the animal economy, and which is necessary to it in retaining its physiological balance;¹ and if this be true, then the preservation of such ovarian internal secretion would be another object of this operation.

In looking over the pathological histories and very accurate illustrations of myomata we had removed during the last eight years, I found that this class of tumor which I have described occurred relatively frequently, and I was more convinced that, if practicable, such an operative procedure would be a distinctly conservative method of treating many myomata. Accordingly I determined to put the operation into practice at the first opportunity.

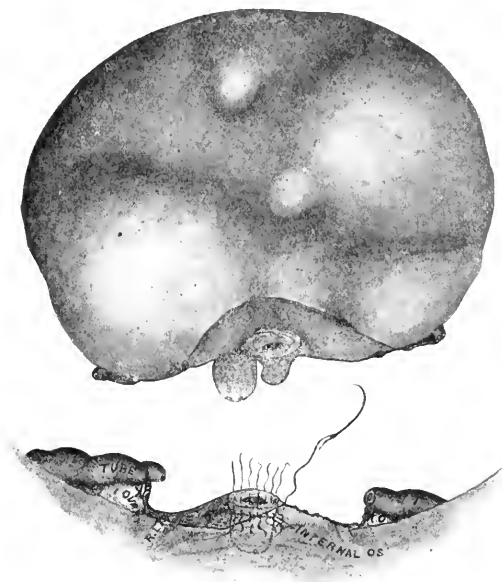
On April 2, 1900, Mrs. H. B., 34 years of age, married, housewife, Opapa, was admitted to the Gynæcean Hospital. Her history was that, except for the usual diseases of childhood, she had always enjoyed good health until her present illness. The menstrual flow first appeared when she was 14 years of age, was always regular, appearing every twenty-eight days, slightly painful, very scant in amount, and lasted three to four days. In 1895 she first noticed a tumor growing in the lower portion of the abdomen. It grew slowly and gave her no discomfort until 1898. The tumor then, she believes, began to increase rapidly in size, caused almost constant irritation of the bladder, and she began to complain of pain and numbness in both lower limbs. These symptoms gradually increased in severity. For a year previous to coming under observation menstruation had occurred every two weeks, and was more profuse, lasting five to six days.

A bimanual vaginal examination determined the cervix and vaginal outlet to be nulliparous and normal. The pelvis was occupied by a myoma of the uterus the size of a large fetal head. The tumor evidently grew from and destroyed at least the upper two-thirds of the uterine body, but I believed that the lower uterine segment could be outlined emerging into the myoma mass just above the internal os. The patient requested that the ovaries and as much of the uterus as possible be left in position.

Celiotomy was performed on April 5, 1900. A myoma, growing interstitial and subperitoneal, was found destroying the uterine body almost to the internal os. Two small nodules grew subperitoneal in relation with the posterior surface of the supra-

¹Knauer, *Archiv. f. Gynäkologie*, Bd. lx., H. 11, 1900; and Halbin, *Monatschrift f. Geburtshilfe und Gynäkologie*, October, 1900.

vaginal cervix. The tubes and ovaries were normal. The broad and ovarian ligaments were ligated on each side, so as to include the ovarian artery as it entered the tumor. The tube and ovary were thus outside the ligature. The round ligaments were ligated and the incision made through the broad ligaments. The peritoneum on the anterior surface of the tumor was incised at a higher point than is usual, separated, and displaced downward with the bladder. The uterine arteries were secured just as they entered the uterine tissue covered by the lowest nodule. A transverse incision was then made from before backward, so as



to leave the greatest possible portion of uterine tissue, about two centimetres above the internal os. The two small nodules attached to the posterior surface of the cervix were then dissected out and removed. At this time I estimated that one and a half centimetres, or possibly two centimetres, of corporeal endometrium lining would be left in the cervical stump. The cut surfaces of the stump were accurately brought together by interrupted fine silk sutures, so placed as not to include or approach the endometrium. The flap of peritoneum was sutured over the stump and operation area from side to side. The abdomen was closed without drainage.

The patient made a perfectly normal convalescence and was out of bed at the end of three weeks. During the convalescence, some days after the operation and at the time of normal menstruation, there was a flow of blood from the cervix. The length of time the flow continued was not recorded.

The patient has remained in excellent health now for more than a year. A letter from her, dated April 16, 1901, states that she has menstruated regularly every twenty-eight days since the operation. She says that the flow, as she expresses it, is limited, not often lasting longer than a day. There is no pain, but sometimes she feels weak. Further, she states that she is not aware of there being present at any time nervous symptoms which might be caused by atrophy of the ovaries.

The menstrual history of this woman previous to the development of the myoma was that the flow was always scant and lasted but three, or at most four, days. Since the operation it lasts usually but one day and is small in amount. It would seem, therefore, that since there exists now not more than one-fourth of the previously normal surface covered by corporeal endometrium, the present amount of flow and the duration of the period is relatively normal.

The conservation of the ovaries, and even a small amount of corporeal endometrium and muscle tissue of the body of the uterus, functioning uterine tissue, in the case of this woman 34 years of age, has for more than a year preserved the functions of ovulation and menstruation. That it will continue to do so until the natural time of the menopause, from the history of the character of menstrual function previous to operation as compared with that since operation, is most probable. The value of the preservation of these functions to such a woman will be apparent to every one.

I have made a careful search through the literature for the report of a similar conservative operative procedure, but without result. The only reference bearing on the subject is to be found in an article by G. Abel, published in 1898, entitled "*Dauerfolge der Zweifelschen Myomectomie.*"¹ This is a report of the results, as determined by pelvic examination and conference with the patient from two to ten years after treatment, of the abdominal operation for myomata of the uterus performed by Zweifel between 1887 and 1894. The study of the various phases of these cases is the subject proper of his article. On

¹Archiv. f. Gynäkologie, Bd. lviii., S. 261, 1898.

page 299 he states that they have three times observed more or less regular menstruation after myomeectomy. This refers to the Zweifel myomeectomy, which is a hysteromyomeectomy with retro-peritoneal treatment of the stump; the method of controlling the blood supply of the cervical stump by continuous partial ligation (*die fortlaufende Partialligatur*) characterizing the operation as Zweifel's. These cases are as follows:

CASE I.—Frau O., 35 years of age. Right ovary left in position. Seventeen months after operation ovary normal size, not sensitive. Menses began on the fifth and ninth weeks after operation, lasted two days, was scant in amount. Then there was a pause of five months without menses, then epistaxis began to occur every four weeks. From the seventh to eleventh month she menstruated, and the fifteenth and sixteenth months, lasting each time three days. From this time on for two and one-half years she had had vicarious epistaxis every four weeks.

CASE II.—Frl. P., 24 years of age. One ovary left in position. The menses appeared the second, fifth, and sixth months after operation. One and one-half and two and one-half years after operation the ovary was distinctly palpable and the patient had menstruated every four weeks. The flow lasted five days and then four days. Aside from backache there were no menses.

CASE III.—Frau W., 31 years of age. Both adnexa left in position. Five years after operation the cervical stump was fixed posteriorly; there was no tenderness; the sound entered the cervical canal for a distance of two centimetres. The right ovary was normal in size, left distinctly palpable. No indication of atrophy of the genitals. From the ninth month after operation the patient has menstruated for from three to four days every four weeks. The flow was scant and associated with some pain. In July, 1898, more than five years after operation, the patient wrote: "The period is quite regular and painless."

Although it is not so stated, it is probable that accidentally a portion of functioning uterine tissue was left in the uterine stump in these three cases, which accounts for the presence and persistence of the menstruation. It is possible, however, that they were cases of cervical menstruation, if such can exist, similar to those referred to by Ashton and Kelly.

Abel makes the suggestion that what was reached without aim in these three cases, where a more or less regular menstruation followed hysteromyomeectomy in which one or both ovaries were

left in position, may purposely be proved to be practicable in the future.

There are a number of questions to be considered to establish the practicability of the performance of this more conservative hysteromyomectomy I suggest for a class of myomata.

First. Of what value to a woman are ovulation and menstruation when all possibility of conception is destroyed?

In reply I would say that the functions of ovulation and menstruation alone, provided their occurrence be not abnormally painful, are essential elements to a young woman's happiness, and often to her good health. With Kelly I believe that the pelvic organs are indelibly associated in the woman's mind with the fundamental differences between the sexes, which impress upon the female organism all that is distinctive and peculiar in her attitude toward the world at large; and with the healthy performance of her functions in the recurring monthly fluxes and ovulation, even if to only the extent here preserved, lie, though the woman be unconscious of it, some of the deepest well-springs of her happiness.

These functions are essential elements to good health, in that upon the presence and activity of the tissues which perform them depends the prevention of the distressing symptoms of the artificial menopause, its not infrequent remote sequelæ, as the neuroses and insanity, and the post-climacteric atrophic changes.

The principle of conservatism in this operation is that voiced by Schröder in 1882 when he wrote: "Vom Uterus wird nur soviel entfernt, als durchaus nothwendig ist; alles was nicht vom Myom durchsetzt ist, wird erhalten."

Second. In what frequency will pathological changes develop in such ovaries left in position?

According to Bulius (90),¹ Papow (40),² and Van Meerdervoort (45),³ the ovaries in every case of myoma of the uterus, regardless of the age of the woman, show macroscopically and microscopically more or less pathological change. From the study of 185 such ovaries these investigators independently agree that the ovaries are enlarged, partially through an increase in size and number of the follicles, and partially through a hyperplasia of the interstitial tissue;

¹Zeitschrift f. Geburtshülfe und Gynäkologie, Bd. xxiii., 1892.

²Centralblatt f. Gynäkologie, Bd. xiv., p. 881.

³Centralblatt f. Gynäkologie, No. 40, 1897, p. 1230.

the stroma tissue is frequently infiltrated with small round cells; the vessel walls show hyaline degeneration, often resulting in stenosis and obliteration of the lumen; that there is a constant premature disappearance of the primoidal follicles, and the corpora fibrosa are much increased in number. As to whether these changes are inflammatory in character, due to irritation extending from the uterus and tumor, or are simply a hyperplasia caused by blood stasis in the veins of the ovary, developing synchronously with the growth of the uterus and its neoplasm, is not as yet definitely determined. The latter view seems to be the most probable one. From a pathological standpoint, therefore, we might conclude that these changes would make imperative the removal of the ovaries with the myomatous uterus. This conclusion, however, is not supported, but is disproved, by the clinical observations of women having myomata for years, and after the operation of myomectomy, in which the functions of ovulation and menstruation are healthfully performed and conception sometimes occurs. Also, it is relatively disproved by the cases of Abel and my own case here reported, for ovulation without abnormal symptoms occurred in every instance as long as the patients were under observation.

As regards the frequency of development of secondary pathological changes in such ovaries left in position, little can be learned. It has been the custom of some operators for many years, particularly the last few years, to leave the ovaries, or an ovary, in position in performing hysteromyomectomy. Pelvic examinations have been made by Gläneeke, Brennecke, and Abel in quite a large number of these cases, at intervals of from one to four years after operation, to determine the rapidity of atrophic changes in the ovaries. In none of these cases examined was disease of the ovaries found. In but two cases, as far as I can learn from a careful review of the literature, has a secondary operation been necessary for pathological lesions of ovaries left in position in hysteromyomectomy. Martin¹ in 1883 performed a supravaginal hysterectomy for a myoma, leaving an apparently normal right ovary in position. Seven months afterward he removed a cystoma of this ovary which had filled the abdominal cavity. Baldy,² in performing hysteromyomectomy with extraperitoneal treatment of the stump, accidentally left one ovary. Four months later he was compelled to do a secondary operation for the removal of a small multilocular

¹*Zeitschrift f. Geburtshülfe und Gynäkologie*, Bd. xv., p. 240.

²*New York Med. Journal*, June, 1888, p. 721.

cystoma of this ovary. The patient died of sepsis after this operation. From this evidence, all that can be obtained, it is reasonable to conclude that the development of secondary pathological changes will be extremely rare, at least not more frequent than the presence of new growths in the ovaries of normal women.

Third. Will secondary atrophic changes take place in such ovaries when a portion of functioning uterine tissue is left in the stump, resulting in the menopause and making the conservative procedure not worth while?

We are able to gain some information on this question by referring to the studies, reported in the literature, of ovaries left in position where no functioning uterine tissue was preserved in the stump, and by comparing such cases with the four where a portion of functioning uterine tissue was preserved in the stump.

From the investigations of Glänecke,¹ Brennecke,² and Abel³ (fifteen cases) to determine the extent of atrophy of the ovaries left in position in hysteromyomectomy with amputation at or below the internal os, and from the clinical observations of Leopold,⁴ Fritsch,⁵ Howitz,⁶ Thorton,⁷ Hamilton,⁸ Grammatikati,⁹ and others regarding the influence of preservation of the ovaries in the same operation on the prevention and character of the artificial menopause, the following deductions are to be made: The ovaries are found enlarged for a few months after operation; then follows a regular diminution in size, and the atrophy is complete in the average case within three years, and in all cases within four years after operation. The artificial menopause and the atrophic changes in the external genitals, with the atrophy of the ovaries, appear later and slower, and the symptoms are milder than after oöphorectomy.

In the four cases reported by Abel, where we assume functioning uterine tissue was preserved, careful pelvic examinations were made to determine the size of the ovaries at varying lengths of time after operation. In the first case seventeen

¹Archiv. f. Gynäk., Bd. xxxv., p. 85.

²Zeitschrift f. Geburtshülfe und Gynäk., Bd. xii., p. 73.

³Archiv. f. Gynäk., Bd. lvii., p. 295.

⁴Archiv. f. Gynäk., Bd. lii., p. 251.

⁵Centralbl. f. Gynäk., Bd. xviii., p. 1338.

⁶Centralbl. f. Gynäk., Bd. xvi., p. 312.

⁷Centralbl. f. Gynäk., Bd. xvii., p. 193.

⁸Centralbl. f. Gynäk., Bd. xviii., p. 974.

⁹Centralbl. f. Gynäk., Bd. xiii., p. 105.

months after operation the ovary was normal in size, two and a half years after it was smaller and harder than at seventeen months, and three and a half years after he states that it was certainly only a little smaller. In the second case the ovary was distinctly palpable one and a half years after operation, and normal in size two and a fourth years after operation. In the third case five years after operation the right ovary was normal in size; the left could not be distinctly felt. The ovaries are normal in size in our case after one year.

It would seem quite positive, from these examinations, that as long as each case was observed, respectively one, two and a fourth, three and a half, and five years after operation, no distinct atrophy of the ovaries had taken place. This belief is further warrantable through the fact that in all the external genitals were free from any indication of atrophic change, there were no symptoms of the menopause, and the function of the ovaries, ovulation, had persisted, in one case for five years.

Comparing these two classes of cases, we find that in the first the ovaries completely atrophied and the other changes of the menopause had taken place within three to four years after operation, while in the second class the ovaries had not atrophied as long as the cases were observed, in one for three and a half years and another for five years, their functions continued, and in none was there the least indication of a beginning menopause.

The preservation of a portion of functioning uterine tissue with the ovaries seems assuredly to be sufficient to continue the functions of ovulation and menstruation until five years at least, and most probably to the natural time of the menopause.

Fourth. Will such ovaries produce painful molimina menstrualia, dysmenorrhea, necessitating a secondary operation?

In the four cases here referred to the molimina menstrualia were normal. In the cases investigated to determine the presence or absence of atrophy of the ovaries by Glänecké, Brennecké, and Abel, and in the clinical observations of the others mentioned, as above referred to, no statement is made of abnormal molimina menstrualia, though they were present, according to Abel, in half of the cases. Painful menstruation would no doubt be induced by the development of the usual causes of ovarian dysmenorrhea, just as in the woman with her uterus and ovaries intact.

Fifth. Is there any technical reason why this operation

should not be performed, and will it increase the danger of hysteromyomectomy?

The blood supply to the uterine stump, securing the uterine arteries at the higher point, would ever be sufficient to nourish the tissues, and infection would not be more apt to occur here than in the ordinary hysteromyomectomy. The bacteriology of the cervix and uterus has demonstrated that it is no longer necessary to cauterize or antisepticize the canal of the cervical stump, at least never in the cases where this operation is applicable. Nor is it of any advantage to excise the endometrium of the cervical stump.

Péan¹ condemned leaving the ovaries in position in the operation of hysterectomy, because in one case, at the time of the next menstrual period, a hematoma developed in the pelvis which caused the death of the patient. This is a single case among a possible many hundred; it will probably never occur again, and cannot indicate that such a complication will form a danger of this operation I have described. The occurrence of pregnancy in the cervical stump, which I believe has been found once or twice after hysteromyomectomy where the ovaries were left, it would seem to me would be impossible if the cut uterine muscle surfaces were accurately and firmly approximated, as they should be, and the peritoneum sutured over the stump, so that the ovum could not reach the cervical cavity or the spermatozoa the abdominal cavity.

The length of operation might be prolonged a few minutes, but not sufficient to increase its danger.

I would say that there is no technical reason why the operation should not be performed, nor is there cause to make it more dangerous than an easy hysteromyomectomy.

Although my experience with this conservative procedure has been limited to one case, no others having come under my care in the intervening months where the operation could be applied, I feel—since it can be associated with no greater danger to life than the usual hysteromyomectomy, there seems to be no cause for complicating sequelæ, and particularly because its object is the preservation of normal tissues, organs, and functions, and through these good health, constituting the highest aim of modern surgery—that it should always be applied in women under 40 years of age having the special class of myomata described.

¹Centralbl. f. Gynäk., Bd. vii., p. 471.

PARTIAL HYSTERECTOMY (?) FOR PUERPERAL SEPSIS.

BY

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THE report of a case by B. C. Hirst in *THE AMERICAN JOURNAL OF OBSTETRICS* for June, 1901, of what he terms "partial hysterectomy for cases of necrosis of the uterus due to streptococcic infection," induces me to publish the following case which occurred in my practice.

Mrs. E. K., æt. 22 years, had a miscarriage at three months for which she was attended by a midwife. A few days later she had high fever and some pain in the left iliac region. She was seen by me June 4, 1900. I found the uterus somewhat enlarged, rather tender, and a moderate fulness of the left broad ligament. She was transported to St. Mark's Hospital, where she entered my service. For the next ten days the symptoms remained about the same: continued high temperature, rapid pulse, and more or less pain in the left groin. On June 19 I opened the abdomen, found the left ovary enlarged to double its normal size, rather edematous, and very firmly adherent to the posterior aspect of the left cornu and fundus. On peeling off the ovary some thick pus appeared coming from the tissues of the uterus. There was a suppurating slough, about the size of an English walnut, situated in the cornu and fundus of the uterus. It looked very much like an ordinary carbuncle. I excised it very thoroughly and touched the resulting wound with pure carbolic acid. An iodoform strip was packed lightly over the wound and passed out at the lower angle of the abdominal incision. The patient made a good recovery and has since given birth to a child at full term.

While I am in total accord with Hirst in the plan of treatment followed in his cases, as evidenced by the procedure followed in my own case even before his publication, I am forced to take issue with him in the comments he made. The inference one gains from them is that in puerperal sepsis of uterine

origin it is only necessary to cut away a portion of the uterus. The excising of a portion of the uterus which has suppurated and sloughed is based on an entirely different indication from that of hysterectomy for puerperal sepsis of uterine origin. In the one instance we have a localization of the infection to a portion of the organ which admits of excision; in the other we have a uniformly infected organ which calls either for total removal or to be let alone. These two conditions ought to be kept distinctly apart. There is a sharp line of demarcation between them, both from a pathologic and a therapeutic standpoint. I admit we cannot always distinguish between them at the bedside. Hence the wisdom of the advice given by me on a former occasion: When a case of puerperal sepsis evidently of uterine origin is not pursuing a favorable course under approved methods of palliative treatment, the abdomen should be opened and the future plan of action be guided by the condition found. In a case I had recently under observation, which was running a tedious course with frequent relapses, I felt pretty confident that somewhere in the uterus there was present a suppurating focus. Although the bimanual palpation of the organ was negative, I finally determined to open the abdomen. To my chagrin and disappointment I could find no such focus. Nothing was done to the uterus and the abdominal wound was closed. Of course the high temperature persisted. But three days later the patient had dysuria, and the urine for the three or four following days contained a large amount of pus. Coincident with this there was a fall in the temperature, a cessation of the cramp-like pains over the hypogastrium, and the patient now passed rapidly into convalescence, which was not interrupted by any further relapses. It is evident that the pus focus did exist, but it was situated low down in the anterior wall of the uterus below the reflexion of the bladder peritoneum, and hence escaped my detection even with the abdomen being open and the uterus explored with the aid of sight.

In a similar case I would benefit by this experience and would not consider the examination of the uterus complete until the bladder was stripped down from the anterior surface of the uterus.

A CASE OF CONGENITAL MALFORMATION LEADING TO ERROR IN DIAGNOSIS OF TUBERCULAR PERITONITIS.¹

BY

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(With chart and five illustrations.)

OCTOBER 25, 1900, I was consulted by Miss B., age 27, who gave history as follows: Her parents were healthy. During the first fifteen years of her life she had lived upon the farm and was well except for the ordinary diseases of childhood. Her menses then began and were regular but painful. The pain

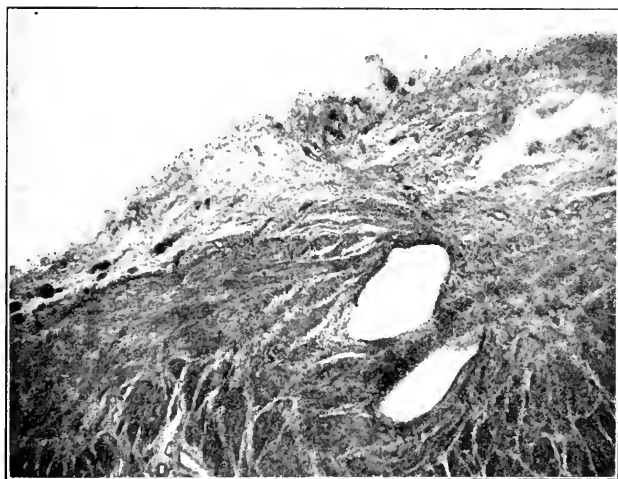


FIG. 1.—Granulations upon peritoneal surface of uterus.

was a severe bearing-down the first day. She also had a severe aching in the pelvis for about two days midway between her menstrual periods. Five years ago she was treated for uterine misplacement, and three years later had the cervical canal dilated. No benefit resulted. One year ago she underwent another dilatation of the cervical canal with curettement. The

¹Read before the Detroit Medical Society, May 22, 1901.

pain became more aggravating and constant. The headaches which began at the same time gradually increased in severity, as did also the pain and soreness in the left ovarian region.

Four years ago she was treated for three months for ulcer of the stomach. She was just recovering from a second attack when I saw her. She had been nourished by rectal alimentation for three weeks. Constipation had been obstinate for five years.

Examination of the chest was negative. Her reflexes were normal. The tongue was coated, flabby, and indented. The teeth were good. Examination of the urine showed a trace of bile. Examination of the pelvic organs showed marked retroversion of the uterus with prolapse. The organ was freely

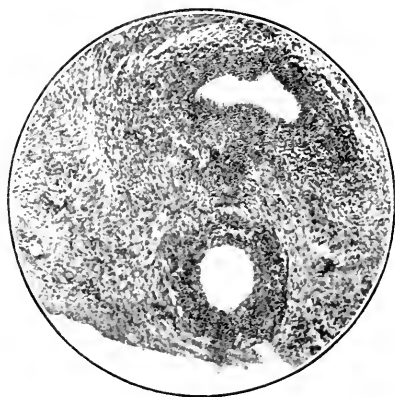


FIG. 2.—Tubes in wall of uterus beneath peritoneal surface. $\times 63$.

movable. The left ovary was enlarged, smooth, and extremely sensitive.

On October 25 I dilated the cervical canal, curetted, and shortened the round ligaments by the Kellogg modification of the Alexander operation. Microscopic examination of curettings showed hypertrophy of the mucous membrane, with the glandular tissue in excess.

She was kept in bed for several weeks. Massage and nutritious foods were administered. She did not improve. The menstrual pain was increased, the shortening of the round ligaments having produced an antelexion, yet no adhesions could be determined.

Two months later, at the King Private Hospital, I made an exploratory incision. A small quantity of straw-colored fluid was found free in the abdominal cavity. The posterior surface

of the uterus was thinly covered with a granular deposit of a light gray color, the larger granules being the size of grape-seeds. They extended from the median line of the uterus outward to, and upon, the base of the left broad ligament, the surface covered being about two inches in width upon the uterus. Delicate adhesions surrounded both uterine appendages.



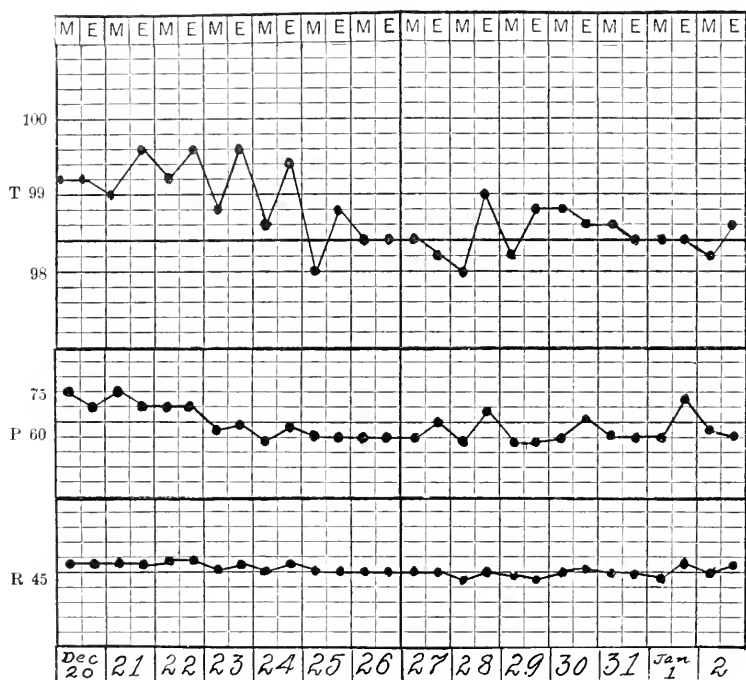
FIG. 3.—Arrangement of glands at entrance to oviduct.

The bands of adhesions were of that kind that float as streamers from the surface to which they are attached when immersed in water.

Macroscopic examination of the ovaries disclosed complete degeneration. I at once removed the uterus and its appendages, believing that I was dealing with a case of tuberculosis, from the presence of the fluid in the peritoneal cavity, from the char-

acter of the adhesions, and from the miliary deposit. The patient made an afebrile recovery, as shown by the appended chart.

The granulations upon the posterior surface of the uterus, which are well shown in Fig. 1, consisted of fibrous connective tissue. They projected as small papillæ, giving the surface a granular appearance. Directly beneath in the wall of the uterus were found a number of tubes lined with short columnar epithelium (Fig. 2). The greater number of these tubes ran parallel to the uterine surface, but some were more or less



oblique. A number of sections through the layer of granulations failed to show that any of these tubes opened upon the surface, although some were traced into this fibrous tissue. Some of these tubes were large enough to be recognized by the unaided eye, while others were very small. May these have been an abnormally enlarged and misplaced Gärtner's duct? The blood supply to this granulation tissue was large; there were also evidences of recent extravasation. Arterioles ran directly outward into the fibrous papillæ. In the subjacent uterine wall were found a number of large veins with valves; or it may have

been one large vein, so tortuous as to resemble an angioma. Surrounding some of the tubes there was found a tissue resembling ovarian stroma. It differed markedly in staining reaction from the uterine muscle. When the uterus was divided into halves

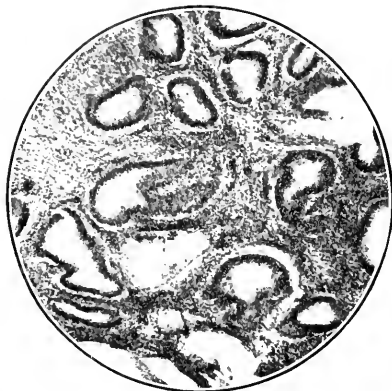


FIG. 4.—Showing absence of lumen in oviduct. $\times 44$.

the mucous membrane of the fundus appeared to be much tumefied and of a delicate pink color. After it had been for a short time in the hardening fluid the mucous membrane projected to



FIG. 5.—Section of tube near its uterine attachment.

a considerable extent from the underlying surface. Sections were made in series from the os to the fundus. The stratified squamous epithelium at the portio vaginalis was ragged, the result of inflammatory action. In the canal the glandular

structures were hypertrophied, and, beginning at the internal os, the mucous membrane showed gradually increased thickness to the fundus, where it was many times the normal depth. There was no material change in the histologic units forming the hypertrophied membrane, except that the portion toward the muscle was composed of a delicate matrix. The gland tubes were branched and irregular, but all were lined with well-formed ciliated columnar epithelium. On following the mucous membrane into the oviduct on one side, the same condition was found, with this difference: instead of the gland tubes being arranged at right angles to the underlying surface, as in the uterine cavity, they were parallel (Fig. 3). Transverse sections of the oviduct further out in the middle of the uterine wall showed that no lumen existed: instead there was a matrix containing gland tissue resembling in every respect the lining of the uterus (Fig. 4). The same condition existed in the oviduct in the opposite uterine wall. Sections of Fallopian tubes near their uterine attachments showed nothing abnormal (Fig. 5).

I am indebted to Dr. Heneage Gibbes for the microscopic and photographic work in connection with this report.

636 WOODWARD AVENUE.

A RARE CASE OF EXFOLIATIVE VAGINITIS.

BY

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(With illustration.)

COMPLETE exfoliation of the mucous membrane of the vagina is of rare occurrence. Our knowledge of this pathological condition is not yet so far advanced that the publication of a new observation pertaining to this subject would not be without interest. Moreover, the following case presents some features which, as far as I know, have not yet been described.

Mrs. N., 50 years of age, has had two normal deliveries. Menses appear at intervals of three weeks, lasting six days, profuse and accompanied by general uneasiness. In the fall of 1899, on account of general weakness, she underwent a massage treatment, and in the course of this treatment her attention was called, by the masseuse, to a hard tumor in her abdomen. She

consulted several physicians, who agreed in the diagnosis of fibroids. Internal use of ergot during two months was without result in stopping the exhausting menorrhagias. Early in January, 1900, patient received a patent medicine, in the form of suppositories, from a friend who claimed to have been cured of fibroids by this remedy. According to the printed directions, patient inserted these suppositories into the vagina every fifth

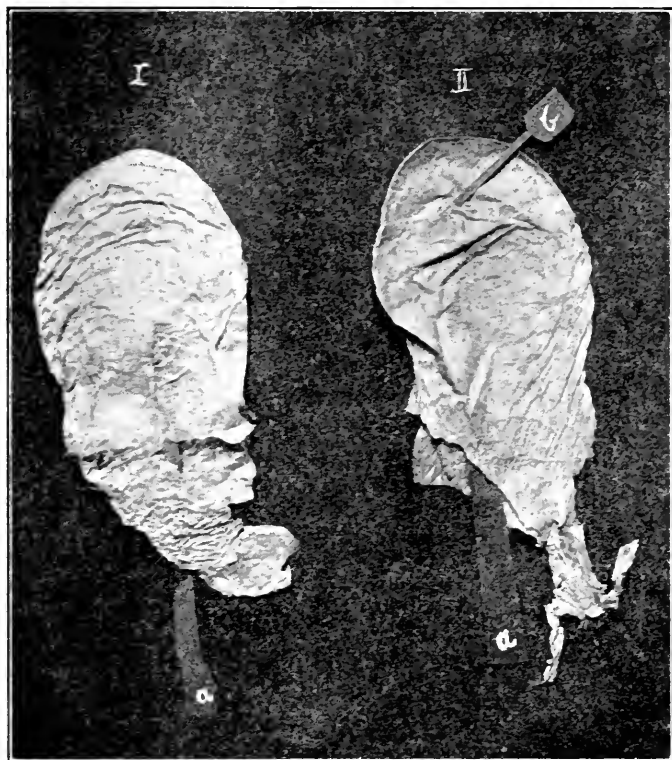


FIG. 1.

Exfoliated vaginal mucosa.

FIG. 2.

day from January 21 to March 8, 1900, *i. e.*, nine times in six weeks. During the first twenty-four hours after the use of the suppository patient experienced regularly labor-like pains. Seventy-two hours after the application patient used a warm vaginal douche, as directed, in order to remove the rest of the substance and its product, consisting of a white membrane. These nine membranes were kept by the patient and given to me afterward. In the last three weeks, however, the patient

grew gradually weaker from the copious menorrhagias. Besides this she suffered from constant tenesmus of the bladder, pains in left side, heaviness in abdomen, and extreme nervousness. Then she consulted Dr. Fischel, who referred her to me.

March 16, 1900: When I assumed charge of the patient her condition was one of marked anemia and emaciation. On examination I was able to confirm the diagnosis—fibroids of the uterus. The tumor, consisting of multiple fibromyomata, extended about as high as the umbilicus. The mucous membrane of the vagina had an absolutely normal appearance. The vaginal portion of the uterus was slightly bluish in color, which was explained as being due to the venous congestion in the uterus.

March 24, 1900: Supravaginal amputation of the uterus per abdomen was successfully performed. Complete recovery.

The expelled membranes were preserved in alcohol. They are white, pear-shaped sacs $10\frac{1}{2}$ centimetres in length and $4\frac{1}{2}$ centimetres in width (Figs. 1 and 2). The anterior and posterior walls lie flat upon each other, thus exactly reproducing the shape of the vagina, of which the walls are normally in contact and flattened from before backward. Fig. 2, *b*, shows a small hole, surrounded by a circle of thickened tissue which is found in all of the membranes and in the same place. This opening represents the external os of the uterus. It lies about $1\frac{1}{2}$ centimetres below the top of the sac, due to the fact that the posterior wall of the vagina is longer than the anterior. Consequently Fig. 1 represents the cast of the posterior, Fig. 2 of the anterior, wall of the vagina. In one of the sacs I found a small, oblong piece of membranous tissue attached to the edge of the described opening, which I presume was exfoliated from the mucous membrane of the cervix uteri. The lower and narrower end of the sac is open (*a* in Figs. 1 and 2), irregular fringes forming the edges. This opening corresponds to the entrance of the vagina. The average thickness of the walls is that of common letter paper. In some thicker portions of the membranes two layers may be separated by means of two fine dissecting forceps, but by doing so the membranes easily tear, they being very fragile. The inside of the sacs is covered with a crumbling, brownish grease which can be easily wiped off.

Both inner and outer surfaces of the sacs are rather rough. On the latter there are wrinkles and folds, and corresponding to these on the inside there are ledge-like elevations. These ridges, running in a transverse direction in the upper part, are longitudinal in the lower portion and do not disappear even if

put on the stretch. The roughness is due to the presence of a series of transverse ridges in the vaginal wall, the rugæ extending from longitudinal ridges, the columnæ rugarum vaginales upon each wall. The casts thus reproduce the finer details of the formation of the vagina.

On examination with a simple magnifying glass there is to be seen a dense network of white and apparently homogeneous strings. The tissue between the latter is a little thinner and therefore more transparent.

For the microscopical examination I embedded pieces of the membranes in celloidin and made sections perpendicular as well as parallel to the surface. As for staining, I used alum-carmin, hematoxylin, hematoxylin-eosin, and Van Gieson's stain.

Under the microscope the membrane consists of three or four layers of horny squamous epithelium, which, being intimately connected, forms a regular mosaic. In the sections cut parallel to the surface the pavement-like arrangement of the large, horny squamous cells is seen, here and there interrupted by circular, smaller and larger openings around which the cells are smaller and closer together. These openings correspond to the ledges of the membrane which have been cut by the direction of the microtome knife. The ledges of the membrane on their part are produced by the papillæ which are found on the rugæ of the vaginal mucous membrane.

An infiltration with round cells, which we usually meet with in the normal as well as in the inflamed mucous membrane of the vagina, cannot be found in my sections. Neither was there any formation of fibrin, as Weigert's stain did not give any positive result. Thus we see that the membrane is a genuine one, because it is entirely composed of organic tissue elements. It is well distinguished from so-called pseudo-membranes. These, as known, consist of fibrin in which there are embedded epithelial cells and leucocytes.

The suppositories which have been used by the patient are cylindrical in form, two and one-half centimetres long and one centimetre in diameter. Their color is a grayish brown and their consistence is the usual one.

Dr. Warren, Professor of Chemistry in the Medical Department of the Washington University, St. Louis, had the kindness to make the *chemical analysis* of these suppositories for me. No definite result, however, was obtained. His report reads: "So far as I have been able to determine of this substance, it contains:

Fatty matter, probably cacao butter (soluble in petroleum ether)	35.04 per cent.
Matter insoluble in petroleum ether.....	64.96 "

"The substance left after removal of fatty matter is a light grayish powder. This has been found to contain *exsiccated alum* in quantity corresponding to about 25 per cent. There still remains as yet unaccounted for about 40 per cent, but the nature of this residue could not be detected."

In order to study in which manner the membrane was exfoliated from the mucous membrane of the vagina, I inserted a suppository into each vagina of two bitches. Seventy-two hours afterward I killed the animals and extirpated both vagina and uterus. In both cases, however, the vagina was found normal and only very slightly reddened in the second case. Apparently the suppositories had not remained long enough in intimate contact with the mucous membrane, but were expelled at once by the strong contractions of the muscular vaginal walls. To avoid this failure in a third bitch, after having inserted the suppository into the vagina, I sewed up the latter under anesthesia. Already, when doing this, I could observe how a great deal of the solved substance was pressed out between the sutures, and consequently I did not find any change in the vagina when I killed the dog seventy-two hours later. Neither did I find a positive result under the microscope in any of the three cases.

From the above it is evident that our case belongs to the category of inflammations of the vagina which are distinguished by the exfoliation of real membranes—*vaginitis exfoliativa s. membranosa*. The etiology of this kind of vaginitis is not in all cases clear. Some of the authors (Thomas,¹ Fritsch,² Fränkel,³ Lee⁴) think that it is mostly combined with exfoliative endometritis (membranous dysmenorrhea), and, according to Garrigues,⁵ found in hysterical women. Or, as in Griffiths'⁶ and Hopkins'¹⁴ cases, it may appear together with a membranous enteritis, the latter being generally believed to be of nervous origin.

Again, the case reported by Porter⁷ shows that exfoliation of the mucous membrane may occur in the course of a severe inflammation following masturbation.

The majority of authors, however (Tyler Smith,⁸ Ziegler,⁹ Veit,¹⁰ Gebhard,¹¹ Pozzi,¹² Keating,¹³ etc.), consider thermic or

chemical irritations of the vagina the main causes of exfoliation of the mucous membrane. These authors maintain that the lining membrane of the vagina separates in form of thin, translucent flakes in consequence of the use of douches which are too hot or those which contain an excess of caustic ingredients, such as carbolic acid or chloride of zinc. The same widespread exfoliation of the epithelial coat of the vagina is seen following the application of strongly astringent drugs, such as alum and chloride of iron.

The changes in the vagina may begin in any portion of the canal, but usually commence near the vulva (Lee⁴). The epithelium is thrown off in large shreds or pieces in which the pavement-like arrangement of the scales is perfectly preserved. These laminae have upon them marks of the rugæ of the vagina and somewhat resemble the cuticle in cases of acute desquamation of the surface of the body. The under surface of these masses is also rough from the indentation of the vaginal papillæ. Sometimes the whole surface of the vagina is seen covered with a white coating, which may be removed by a forceps in membranous pieces of considerable extent and thickness. This affection may be attended with a slight discharge from the subepithelial surface, but in many cases may be unnaturally dry (Smith⁸). The name "epithelial vaginitis," as proposed by Smith for this condition, has been adopted by a number of writers (Hewitt,¹⁵ Lee⁴). Cases of this kind have also been reported by Farre¹⁶ and Sireday.¹⁷

The exfoliation of the epithelial coat of the vagina may occur without any symptoms. I had but recently the opportunity of observing a case of this sort. On examining a lady whom I had successfully treated for peri- and parametritis several months ago, I found the mucous membrane of the vagina and the vaginal portion of the uterus covered with thin, white, translucent flakes which could easily be removed by means of a dissecting forceps. The largest of these pieces were a square inch in size. The under surface of the laminae, which consisted of two distinct layers, was discolored with blood. The mucous membrane of the vagina appeared normal. The patient had used scalding-hot douches without feeling afterward a sensation of any kind. In other cases, however, the exfoliation produces more or less severe pain. In Porter's⁷ case the vaginitis, which resulted in the desquamation of the whole canal, was accompanied by violent pains. In the case reported by Welch¹⁸ the patient, after a day

of aching pain, felt something slip from the vagina, which was found to be a piece of the vaginal mucous membrane about three inches in length.

Remarkable is the sensation which was experienced by my patient. In her case, as I stated before, labor-like pains occurred regularly in the first twenty-four hours after the application of the substance by which the exfoliation was produced. This seems to indicate that the loosening of the membrane started comparatively soon after the application of the suppository.

The separation of the cast takes place within the epithelial stratum of the vagina, as plainly seen in my case and in that reported by Griffiths.⁶ In other cases in which scalding-hot douches or caustic drugs have acted too long or too severely on the vaginal mucous membrane, the exfoliation may occur in deeper layers of the vaginal tissue. This fact is illustrated by the two following cases, which are the only ones I could find in recent literature at my disposal:

Barsonkoff¹⁹ publishes a case of sulphuric-acid poisoning in which, eight days after her entrance into the hospital, the patient had a slight uterine hemorrhage. A few days later, without having had any elevation of temperature, she passed a large slough representing a complete cast of the vagina. This included the entire thickness of the vaginal walls and some of the subjacent connective tissue.

Busse²⁰ reports the case of a woman, 39 years of age, who was suffering from an adhesive colpitis. Every time when the adhesions in the vagina were broken a parenchymatous hemorrhage occurred, which finally became so copious that a tampon with chloride of iron and chloride of zinc had to be inserted into the vagina and kept there for three days. After this, necrosis of the mucous membrane took place, and three days later a slough was thrown off which was found to be the vaginal tube with the vaginal portion of the uterus.

The features of this case have some apparent resemblance to the so-called *perivaginitis phlegmonosa dissecans*. In the latter disease there is an abscess formed in some part of the paravaginal tissue. This abscess may spread into the loose connective tissue, thus taking on a phlegmonous character, and finally surround the whole vagina. The consequence will be that the vaginal tube, loosened from its normal connections, is expelled. In other words, the diffuse perivaginal inflammation is the *primary* change from the normal state; the expulsion of

the vaginal tube, *the secondary*. In Busse's case, however, the excessive cauterization produced a primary necrosis of the vaginal mucous membrane, which on its part resulted in a demarcation in the perivaginal tissue; *this demarcation is secondary*.

Thus it is evident that Busse's case differs from mine only in respect to the intensity of the caustic agent employed.

The prognosis of exfoliative vaginitis, as a rule, is favorable. Inasmuch as the causes, scalding or cauterizing, usually do not occur but once, the mucous membrane regenerates without persistent lesions. In the above-mentioned case observed by Barsionkoff, in spite of the extensive loss of tissue, no marked contraction of the canal was noted. On the other hand, frequently recurring exfoliation of the epithelial coat of the vagina may result in strong and extensive formation of scar tissue.

To sum up, in my case exfoliation of the vaginal mucous membrane was caused by a caustic substance, the exact nature of which could not be detected, and occurred nine times in six weeks. Each membrane represents a complete cast of the vaginal tube, reproducing also the finer details of the surface of the mucous membrane. Microscopically they consist of horny epithelial cells, pavement-like, arranged as *in situ*. Despite the numerous exfoliations, the vagina has a perfectly normal appearance.

In so far as the completeness of the moulds and their frequent occurrence are concerned, this case is unique in literature. Regarding the fact, however, that the patent medicine used in my case must have been sold also in other places besides St. Louis, I should think that cases similar to mine occur rather frequently; but the dearth of reports heretofore published seems to be due to the fact that these cases do not come under the observation of physicians. I would like to call the attention of my medical confrères to this point, in the hope that others will report similar cases and thus increase our knowledge of exfoliative vaginitis.

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HYPERPLASTIC GLANDULAR ENDOMETRITIS.

BY

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(With two illustrations.)

MATTHEWS DUNCAN once said in a lecture: "Who can tell what any one means by endometritis? Often its use is the parent or child of ignorance and confusion; often it is the cloak of confusion." There is yet to be proposed an exact and practical classification of endometritis. In the light of our present knowledge we are unable to harmonize our clinical, macroscopic, and microscopic forms of endometritis. In making a diagnosis from prominent symptoms and evident etiological factors we are unable to foretell the naked-eye and microscopic findings. One and all of the pathological forms of endometritis may exist without clinical signs. On the other hand, any and all of the pathological lesions of the endometrium may give the same clinical

manifestations as endometritis. Furthermore, these symptoms may be present in the absence of any evident pathological change in the endometrium.

If, then, we fail to satisfactorily classify the established forms of endometritis, how much more difficult it is to draw the line sharply between inflammatory growths of the endometrium and true tumor growths!

Are we to recognize a benign adenoma of the uterus? Are the mucous polyps to be classified as new growths or as polypoid forms of endometritis? In fine, is it possible to define the so-called hyperplastic glandular endometritis from benign adenoma of the endometrium?

Referring to general pathology, we are unable to distinguish hyperplastic glandular growths of inflammatory origin from benign adenomata. In reviewing the opinions of a number of authors it becomes evident that to separate the two would be impossible, and to admit of a connecting link between the two lesions is conceivable.

Rindfleisch, Chiari, Weichselbaum, and Orth favor the view of simple inflammatory hyperplasia to the exclusion of benign adenoma of mucous surfaces. Thoma, Eppinger, and Ponfick recognize adenoma, while others, such as Van Heukelom and Birch-Hirschfeld, believe in the existence of a connecting link between these lesions. All believe in the inflammatory origin of mucous polyps. Polyps of inflammatory origin are found in the stomach by Klebs. Birch-Hirschfeld, Petrow, and Landel describe diffuse and circumscribed growths of the gastro-intestinal tract due to catarrhal inflammation. By a careful analysis of their reports it is evident that inflammatory hyperplasia of mucous surfaces merges insensibly into tumor growths both benign and malignant. In a large per cent of their cases carcinoma was associated in the same organ.

In the urinary tract Stoerek, Cahen, Rehn, and Kaufmann recognize papillomata of inflammatory origin.

Le Count¹ says: "It is especially concerning tumors of the Fallopian tube that confusion has arisen; there has been quite a general failure to recognize that a diffuse hyperplastic inflammation is possible—a process that is strictly analogous to the polypous hyperplasia of other mucous surfaces—and that in certain typical examples it is as distinct from tumor growth as

¹E. R. Le Count: The Genesis of Carcinoma of the Fallopian Tube in Hyperplastic Salpingitis, with a report of a case and a table of twenty-one reported cases. Johns Hopkins Hospital Bull., March, 1901.

gastritis proliferans is from carcinoma of the stomach." He believes it to be fully demonstrated that there exists an imperceptible transition of hyperplastic processes of the tubal mucosa into those of true tumor growth, and that these may terminate in the production of benign tumors.

If, then, there is no unanimity of opinion among general pathologists, it is not surprising that the same discrepancy exists among gynecologists in reference to similar lesions in the endometrium.

We find Pozzi, Olshausen, Döderlein, Gebhard, and Ruge failing to recognize benign adenoma of the uterus, and classifying them all as inflammatory hyperplasia, reserving the term adenoma for malignant glandular growths.

On the other hand, Herman, Bland Sutton, Landau, Abel, Schröder, and Doran report cases of benign adenoma of the endometrium.

Hubert Roberts read a paper before the October session of the Obstetrical Society of London on "Adenoma of the Body of the Uterus." He reported a case of benign adenoma of the uterine body together with a cancer of the cervix. Reference was made to the tendency of these so-called benign adenomata to become malignant, and to the importance of looking upon recurring adenoma with grave suspicion in women of advanced years because of their tendency to become malignant. His views were supported by all who entered into the discussion of the paper.

Herman gives as his reasons for discrediting the inflammatory origin of these growths—first, that pus would be secreted if it were inflammatory; second, recovery would ensue if it were genuine endometritis; third, severe hemorrhage would not occur if it were endometritis. He therefore speaks of polypoid and hyperplastic or diffuse adenoma. The fallacies of his reasoning are too evident to demand consideration.

Landau tells us that the increase in the number of glands can only occur in adenomata, and never in endometritis; while Gebhard, Ruge, and Döderlein speak of this increase in the number of the glands as characteristic of hyperplastic glandular endometritis.

The specimen I present corresponds both clinically and anatomically to the fungous endometritis of Olshausen. The patient, 23 years of age, was in perfect health until about one year before the operation in which this specimen was removed. Her menstrual periods then became prolonged, until finally they

extended over the entire month. There was no pain and no leucorrhea. The operation was performed in the Presbyterian Hospital by Dr. J. C. Webster. Upon dilating the cervix preparatory to a curettement, a firm mass the size of an almond was found bulging into the cervical canal, and attached by a broad base to the cervix at a point immediately below the internal os.



FIG. 1.—Cystic hyperplastic glandular endometritis and cystic degeneration of the cervix.

The growth completely surrounded the cervical canal. A high amputation of the cervix was performed, and it was then discovered that the entire endometrium was involved in a fungous growth. A few days later the uterus was removed, leaving the apparently normal appendages intact.

The endometrium was full four times its normal thickness and thrown in folds. Over the surface were numerous glistening

areas, the size of a pinhead, formed by the cystic glands. On microscopic examination the glands were seen to be greatly increased in number—a diffuse hyperplasia. There were great variations in the size and outline of the glands. Most of them were more or less distended into cystic spaces. These changes were more marked in the deeper strata of the endometrium. Some glands extended a variable distance into the musculature. There was but one layer of gland epithelium of the characteristic columnar type. The interglandular connective tissue contained a serous exudate which widely separated the connective-tissue cells.

Quite distinct from the fungous growth of the endometrium was the growth in the cervix. Cross-section of the cervical wall, including the growth, showed spaces of variable sizes honey-combing the protruding mass and the underlying wall of the



FIG. 2.

cervix. Under the microscope these spaces were seen to be distended glands of the cervical type, having but a single layer of epithelium, and involving almost the entire wall of the cervix as well as the protruding growth. The essential difference between the growth in the body and the cervix was not in its histological structure, but merely in that the former was diffuse, the latter circumscribed.

The question arises: Have we here to deal with a benign adenoma or with an inflammatory growth? The history of the case affords no clue. The diffuse character of the growth in the body suggests an inflammatory origin; yet the circumscribed growth in the cervix is probably dependent upon the same causal factors.

In a word, we have hyperplasia of the glands in both the diffuse growth in the body and the circumscribed growth in the

cervix, and we are unable to positively classify them either as true tumor growths or as hyperplastic glandular endometritis.

This specimen illustrates what has been asserted by general pathologists—that the two lesions cannot be clearly differentiated; that a connecting link exists between them. Practically speaking, all are agreed that there exists a tendency for inflammatory glandular growths to develop into benign and malignant new growths, and when occurring in old age, or when recurring after repeated curettement, they are to be regarded with suspicion.

100 STATE STREET.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, April 19, 1901.

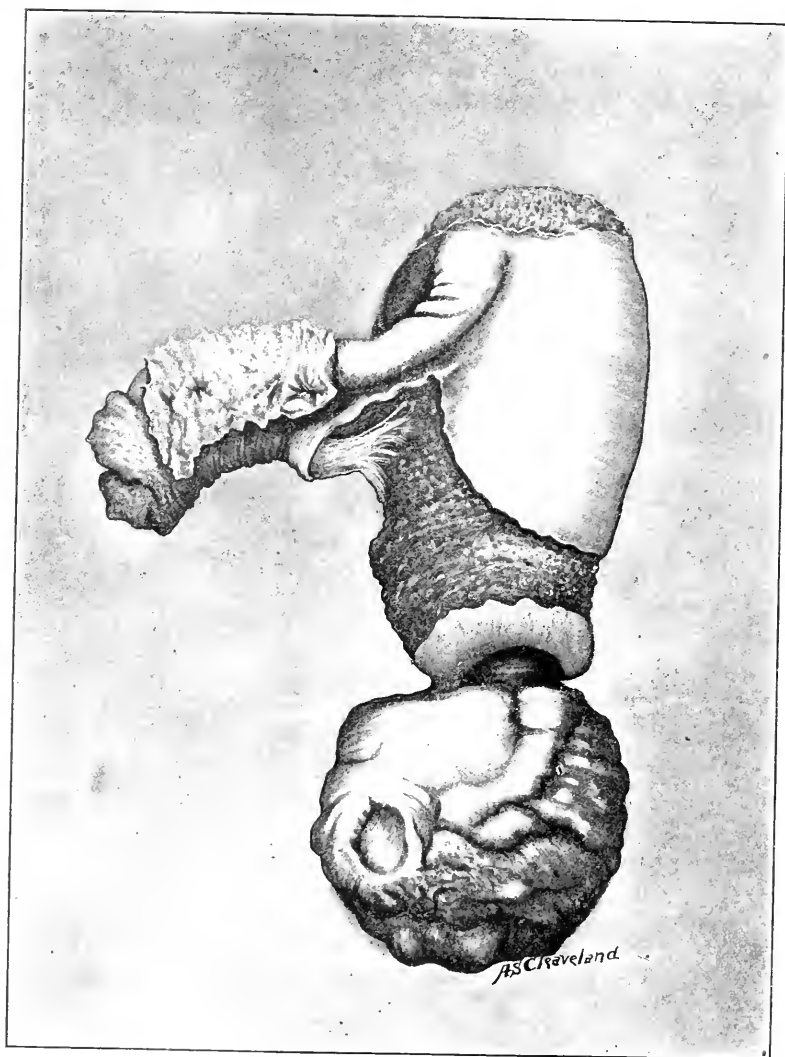
The President, REUBEN PETERSON, M.D., in the Chair.

CARCINOMA OF THE VAGINA AND CERVIX.

DR. LESTER E. FRANKENTHAL.—The first specimen I present is from a case of carcinoma of the vagina in its upper third and of the cervix, sent to me through the courtesy of Dr. Frank Cary. It was removed from a virgin 42 years old. It was impossible to do an extirpation from below on account of the narrowness of the genitals, and so I removed the uterus with the vagina intact from above. The vagina does not appear intact now because I cut it open after the operation.

I had read in the literature about a year previously of this operation, but I could not trace the source. I therefore asked Dr. Watkins and Dr. Webster to assist me in looking up the literature, but we did not find the article I had in mind. About a week after the operation the *Centralblatt* appeared, and I find that Wertheim, of Vienna, republished his cases and added a case of one of his assistants, and that is where I originally got the idea. Since then a controversy has been going on between Wertheim and Dr. X. O. Werder, of Pittsburg, the latter claiming priority. I did not know of Werder's article until this controversy or dispute in THE AMERICAN JOURNAL OF OBSTETRICS for March of this year. The operation is really a simple one. It took me two and a half hours to do it because it was a new one to me, but I believe it can be done in an hour and a half. I opened the abdomen first, opened the peritoneum in front and behind the uterus and loosened up the vagina, after having ligated off the broad ligament, shoved the vaginal wall down and shoved the uterus and adnexa down into the vagina like in-

verting a glove. Then I closed up the peritoneum and then the abdomen. Then I circumcised the vulva, loosening up the remainder of the vaginal canal and leaving a small strip of healthy



Hypertrophy of anterior lip of cervix.

vagina under the urethra for protection and support. I extracted vagina, uterus, and adnexa in one. The patient made a recovery for twelve days, when there was a sudden rise in temperature; she had distinct friction sounds, developed double-sided pneu-

monia, and died. Postmortem examination was made in the presence of five attending physicians at the Michael Reese Hospital. The abdominal cavity was found absolutely clean; the peritoneum had perfectly healed. There were the typical post-mortem findings of croupous pneumonia. At about the same time with this patient two other patients in my service at the Michael Reese Hospital who were being prepared for operation died from pneumonia before the operation was performed.

HYPERTROPHY OF THE ANTERIOR LIP OF THE CERVIX.

The next specimen is one of the most unique of its kind that it has been my good fortune to see, and I wish to thank Dr. Carver Williams for the same. When I saw the patient for the first time at Provident Hospital I thought she had a complete prolapse of the uterus. The cervix hung out of the vagina and was badly eroded from contact. I made a diagnosis of complete prolapse of the uterus, passed my hand up into the vagina to see the position of the uterus, expecting to find it retroverted, as it always is in these cases; but I got into the external os, so that the mass could not be anything else than either a fibroma or hypertrophy of the anterior lip of the cervix. Besides, she had had complications of the adnexa, the posterior wall of the uterus being firmly adherent to the rectum and peritoneum behind. Extirpation was exceedingly difficult. Patient made an uneventful recovery.

SUBPERITONEAL GROWTH COMPLICATED BY EXTRAUTERINE PREGNANCY.

I saw the patient from whom this specimen was removed on Wednesday with Dr. W. S. Orth, having made a diagnosis of tubal abortion. I advised that the patient be kept quiet and under observation, so that in case of necessity of operative interference very little time would be lost. On the following Saturday I was sent for in a hurry between twelve and one o'clock at noon. Five other physicians had previously seen the patient and had made a diagnosis of tubal pregnancy with rupture. However, on account of the peculiarity of her symptoms, slowness of the onset, etc., I thought the best diagnosis that could be made was that of incomplete tubal abortion. I operated on the patient at St. Luke's Hospital and had the satisfaction of finding the tube incompletely emptied; there were secundines adherent in the cavity of the tube. The fimbriated extremity of the tube was sufficiently large to admit the insertion of three fingers. The patient recovered.

A week later, through the courtesy of Dr. E. Læckner, I saw this patient, who likewise gave the history of extrauterine pregnancy, and I made a diagnosis of extrauterine pregnancy that was developing in the broad ligament subperitoneally, and I did that because, in spite of the fact that the patient was anemic, she never had any fainting spells or symptoms of collapse; like-

wise because the mass was firmly attached to the lateral walls of the uterus, so that it simulated an intraligamentous cyst on bimanual palpation excepting for its firmness; then the mass showed a tendency to development posteriorly and under the uterus, so that the uterus was, as it were, riding on top of it; then the whole mass, with the uterus, was freely movable. I made a diagnosis of subperitoneal growth with extrauterine pregnancy. After opening the abdomen I found it clean; there was not a drop of blood in the patient's belly. I then clamped off the tube at its uterine extremity—a method that many of us have been using for a long time in extirpating intraligamentous cysts of the broad ligament. I had been using it for quite a long time when Wertheim published his method of extirpation of tumors of the broad ligament and of extrauterine pregnancy by ligating off, first, the uterine extremity of the tube, and then working his way down in the cellular tissue between the broad ligament and uterus and shelling it out. I do not know whether this has ruptured or not. In order to prove this I will have to make a transverse section to determine whether the tube is intact wall or not and examine microscopically. You see the fetal bones sticking out of the mass. This is the sixty-ninth case of extrauterine pregnancy I have had the good fortune to see.

DR. REUBEN PETERSON.—I would like to say a few words in regard to the first specimen presented by asking Dr. Frankenthal how the raw surface was treated after the vagina was removed. Second, I would like to say a few words regarding the complication of double pneumonia which followed the operation. Within a month I have had two cases of pulmonary complications following operations. The first was in a patient upon whom I performed Alexander's operation. The operation was very simple and was finished at about twelve o'clock; at three o'clock the patient had a well-developed case of pneumonia limited to one lung. Ether was administered as an anesthetic. There had been no unnecessary exposure during the operation, but interrogation showed that the patient had been exposed to a severe cold on a street car some days previous to her admission to the hospital, and that she was coughing a little at the time she took the anesthetic. This is the first case I have ever had of pneumonia following anesthetization. I have been making some inquiries of my professional friends since then, and I find it is not very uncommon in this city, especially during the past year.

My second case occurred three days ago. I removed the tube and ovary on one side and did a ventrosuspension. This patient also developed pneumonia and has not recovered from it yet. In ten years of operating I have never had a case of pneumonia following operation before. Now I have had two cases within a short time, and I should be very glad to hear the experience of other members in this regard.

DR. ALEXANDER HUGH FERGUSON.—I might say a word or two

with reference to the first specimen with the mass protruding from the cervix. A short time ago a patient was taken to the Chicago Hospital with a very large mass protruding from the vulva which simulated complete prolapse of the uterus. Associated with it were necrotic spaces on it, two about the size of half a dollar, as well as smaller ones. There was a great deal of foul odor, but at the time of the operation it proved to be simply a myomatous growth of the cervix. The specimen was examined by Dr. Evans, who stated that there was no malignancy about it. The case simply showed the remarkable size which these cervical growths attain when they develop internally. But this is the first time that such a large growth protruded completely through the vagina and external to the vulva. I must compliment Dr. Frankenthal upon the extirpation of the vagina in his case. It is a beautiful piece of work.

The other specimens of extrauterine pregnancy are interesting. I have a woman in the hospital now with extrauterine pregnancy whose case is of extreme interest to me. She is 35 years of age. She bore a child sixteen years ago and had puerperal fever following childbirth. Nine months ago she got married and her menstruation ceased in December. Then she began to flow a little in January, February, and March, had rupture and prolapse, and was attended by a practitioner before I was called. By this time she had developed some fever, her temperature ranging between 99° and 101° , pulse ranging from 100 to 110. The abdomen was tympanitic. She was taken to the hospital, and a week ago last Tuesday I operated on her. I opened the abdomen and found coagulated blood filling the pelvis and extending away up to the diaphragm on both sides, particularly on the right side, although the extrauterine pregnancy was on the left side. It appears that foreign material has a greater tendency to find its way up on the right side than on the left. The fetus was alive when I removed it. I encountered no difficulty in removing the tube and ovary on that side. On the right side she had hydrosalpinx, and behind, in the right pelvis, she had an acutely enlarged, tympanitic, friable bowel, which had become adherent (some of it) recently, and some of it for a long time. When I began to roll this out and separate the adhesions and try to straighten the bowel, I came to a part of the bowel that was bent on itself to the extent of two and a half inches on each side. I straightened it out and ruptured the bowel, as it was so friable. I removed over a foot of adherent bowel, making an end-to-end anastomosis with the Connell suture. Patient has progressed without an untoward symptom.

As to pneumonia following the administration of ether and chloroform, it is not an uncommon complication. I have had a number of such cases—I think five or six in all. I have had two within the last year. One was a little child upon whom I performed a cleft-palate operation, the patient being a little colored boy. He developed pneumonia on the third day and

died. This is the first case I have had of pneumonia following the administration of chloroform. I have used chloroform in private and hospital practice for a number of years. I have an anesthetist who gives it well. I have had two other cases, one who developed broncho-pneumonia about a year ago this coming May. She had a little cough when she was admitted to the hospital. She died from broncho-pneumonia. The operation was done for the removal of a double pyosalpinx. The other case I have had within two months. The patient was pregnant, and also had chronic appendicitis. I operated for the chronic appendicitis; the patient contracted double pneumonia; Dr. Quine was called in to attend her, but she developed uremia and died.

DR. FRANKENTHAL (closing the discussion).—In answer to the first question of Dr. Peterson, the vagina was packed with iodoform gauze, after having drawn as much of it together with catgut as possible so as to narrow its lumen. It was kept packed for three days, after which the packing was removed and the vagina cared for by antiseptic douches.

With reference to the second question of Dr. Peterson, septic pneumonia is to be excluded, first, on account of the postmortem findings; second, as I mentioned before, there were two other cases of pneumonia in the hospital at the same time. If pneumonia is more frequent than it formerly was after operation, I should explain it on the ground of the greater prevalence of Pfeiffer's bacillus. In the case of extruterine pregnancy, the interne at St. Luke's Hospital telephoned me in the evening that the patient had a sudden chill (this was at least two weeks after operation), with elevation of temperature to 103°. I saw her at noon of the same day. I was not alarmed then, and felt sure that she was having la grippe. I looked into the throat and saw white patches. The patient subsequently developed a suppurative otitis media, for which Dr. Allport resorted to paracentesis. Cultures were also made of the pus that was removed from the middle ear, and the Pfeiffer bacillus was found. At the time the interne telephoned me that evening I told him to make cultures from the nose and throat. He did so and found the Pfeiffer bacillus.

Day before yesterday I had a case of fibromatous uterus in a patient about whom I was anxious for various reasons, and because she has been seen by many professional men in this country. I was particularly anxious to have her recover because of some things that had been said to her. I refused to operate on her three weeks ago, at which time she wanted to be operated on, because at that time we had quite an epidemic of influenza here. She was only operated on forty-eight hours ago on that account. It is not so much the anesthetic as it is the presence of the Pfeiffer micro-organism, which finds an easier opportunity of playing havoc on a mucous membrane irritated by the anesthetic.

DR. BERTHA VAN HOOSEN (by invitation) demonstrated

(A) A CARRIER FORCEPS, (B) A DRAINAGE SPECULUM, AND (C) A VAGINAL APRON.

DR. ALEXANDER HUGH FERGUSON read a paper entitled
SUPRACERVICAL AMPUTATION OF THE UTERUS PER VAGINAM; VAGINAL HYSTERECTOMY WITHOUT OPENING DOUGLAS' POUCH.

DR. THOMAS J. WATKINS.—I have very little to add to what I said in my paper on this subject before this Society two months ago. As regards the technique, I believe it simplifies the operation to incise the anterior wall of the uterus along the median line, which allows the uterus to be delivered through a smaller incision and with greater facility. I believe it is a great advantage, in ligating the broad ligaments, to clamp, then cut, and to remove the clamps as the ligature is tied. When one ties the ligature and then cuts the broad ligament, there is always danger that it may leave the ligature loose and that some bleeding may occur. As to the operation described by Dr. Ferguson, I have thought it advisable, in leaving the cervix, to excise the mucous membrane of the cervix in order to diminish the danger of infection in the stump. I have thought it advisable, too, not to bury any ligatures in the stump, but to close the vaginal mucous membrane, the peritoneum of the bladder, the broad ligaments, the peritoneum on the posterior part of the stump, with a non-capillary suture, such as a silkworm gut. I believe in suitable cases that supravaginal amputation of the uterus is better than vaginal hysterectomy. It takes less time than to do a complete hysterectomy by the ligature and suture method, there is less raw surface left, and the small part of the cervix may increase somewhat the strength of the pelvic floor. The greatest objection to the operation is that the number of suitable cases for the operation is somewhat limited. One will not appreciate the advantages of supravaginal amputation of the uterus per vaginam over vaginal hysterectomy without experience with the former operation.

DR. LESTER E. FRANKENTHAL.—I would like to ask Dr. Ferguson what is the use of leaving the cervix. I do not think Dr. Watkins meant that it would assist in supporting the pelvic floor. I do not see any use in leaving the cervix. If a woman has to undergo a capital operation, she had better have the cervix removed also.

As far as the operation itself is concerned for complete prolapse, my own personal experience has been bad as to remote results. When I have seen the cases subsequently, after total vaginal hysterectomy, they have frequently prolapsed again, and I prefer the operation suggested by Freund and Wertheim and others, where we can leave the uterus, opening up the anterior peritoneum from the vagina and turning the uterus upsidedown, as it were, sewing the fundus on somewhere near the urethra and closing the vagina over it.

DR. FERGUSON (closing the discussion).—With regard to the

field for this operation, I must disagree with Dr. Watkins, for I believe it is exceedingly wide. Take those women who are in the neighborhood of 40 years of age and over, who have about reached the climacteric, in whom the uterus cannot be of any use so far as reproduction is concerned, and supposing one could remove a myoma from the uterus, which I could have done in several of these cases, it is preferable to remove the whole organ—in other words, to do a supracervical amputation. There is great advantage in leaving the cervix in a number of cases, if for nothing else, for the sensation in the cervix. When a woman herself can feel the cervix is there, she is happier, and I think it is well to leave it on that account. With regard to its being any support to the vaginal vault, I would be inclined to doubt that, because it has been admitted by gynecologists that it does not support the vaginal vault. I have seen a number of cases, and have operated on three myself, where the whole uterus was removed by means of an antero-posterior incision, and hernia followed. I have never seen a hernia follow where the cervix was left. However, some of you may have seen it, but I have not at the vault of the vagina where the cervix is left.

Dr. Frankenthal spoke about inversion of the uterus. Cases of complete prolapse of the uterus most frequently occur in women between 40 and 60 years of age. The uterus is not likely to invert itself. It is chronically inflamed. In complete prolapse of the uterus in women in the child-bearing period this is not the operation to do.

I was surprised at the facility with which this operation could be done, as well as with the quickness with which it could be performed. I remember doing a hysterectomy in the clinic in a few minutes. I made an anterior incision and turned the uterus out. I then made an antero-posterior incision; I was not going to operate according to this method at all, but finding it difficult to apply ligatures on the lower part of the broad ligament, or rather upon the uterine vessels, I changed my method of operating, put on clamps, and did the old operation inside of seven minutes by inverting the uterus.

DR. M. L. HARRIS.—If not too late, I would like to say a word or two on this subject. Dr. Ferguson said that he had never seen vaginal hernia or complete prolapse after supravaginal amputation. I operated this afternoon on such a case, the supravaginal amputation having been done about six months ago for a fibroid, and there was the most complete prolapse or vaginal hernia that it was possible to imagine. The vagina protruded between the thighs, forming practically a hernial sac. It was filled with intestines, and on the apex of it there protruded a large cervix, half of which was covered by a large ulceration. So this case shows that the cervix does not help to support the vaginal vault. We may have complete prolapse, and it simply makes it necessary to remove the cervix at a subsequent operation. I can see no advantage in leaving the cervix, especially when we take out the rest of the uterus.

TRANSACTIONS OF THE SECTION ON
GYNECOLOGY OF THE COLLEGE OF
PHYSICIANS OF PHILADELPHIA.

Stated Meeting, May 16, 1901.

JOHN C. DA COSTA, M.D., *in the Chair.*

DR. CHARLES P. NOBLE reported

AN OPERATION FOR APPENDICITIS COMPLICATED BY DIABETES AND
NEPHRITIS.

Mrs. R., aged 26, mother of two children, consulted me February 8, 1901, complaining of pelvic pain and general debility. Her youngest child was 5 months of age. Menstruation was regular and normal. On examination there were found a subinvolved enlarged uterus and moderate laceration of the perineum. On April 5 she consulted me, complaining of sharp pain in the right groin, most pronounced over McBurney's point. Her pulse was 80 and temperature 99° F. Appendicitis was suspected and she was put to bed. The following day the diagnosis was evident and operation was advised. As she was nursing her baby and the symptoms were not urgent, operation was not accepted until the 7th, and was performed on the 8th. The highest temperature before operation was 100° F. The enlarged appendix could be plainly palpated through the relaxed abdominal wall. Examination of the urine at this time showed a specific gravity of 1024, sugar 0.55 per cent, but was otherwise negative. As the patient did not present any of the symptoms of diabetes, the appendix was removed.

The operation was performed through an incision through the right rectus muscle. The appendix was so thickened that it was not possible to bury the stump, owing to infiltration in the walls of the cecum. Because of the unsatisfactory character of the stump a gauze drain was used. From the standpoint of the abdominal wound the patient made a smooth recovery.

The urinary findings were of decided interest. The urine passed on the 8th contained 0.75 per cent of sugar; on the 9th (the day following the operation), 1.66 per cent of sugar, specific gravity 1034; on the 10th, 0.75 per cent of sugar, also hyaline casts, specific gravity 1040; on the 11th, 0.62 per cent of sugar, many hyaline and granular casts and a few blood cells, specific gravity 1032; on the 12th, 0.5 per cent of sugar, hyaline and granular casts, specific gravity 1030. From the 12th to the 15th the number of casts decreased and the sugar remained constant at 0.5 per cent. After the 15th no more casts were found. On the 18th the sugar had diminished to 0.1 per cent, and on the 27th

sugar had disappeared and the urine was normal, with the exception of a few leucocytes.

On the 12th. at the height of the attack of acute nephritis, the temperature reached 102° and the pulse 102. This febrile condition subsided with the nephritis.

The chief point of interest in the case is that the operation was performed notwithstanding the existence of a moderate degree of glycosuria. This is the fourth case I have operated upon when glycosuria was present. Two of the others made good recoveries and one died of diabetic coma.¹ This experience, together with my knowledge of that of other surgeons, has caused me to hold the following conclusions:

A moderate degree of glycosuria, about one per cent, is not a positive contraindication to operation.

If the patient's general condition is good and the symptoms of diabetes are not pronounced, and if the indication for operation is marked, it should be undertaken.

The prognosis is necessarily graver than in cases free from glycosuria, because of the ever-present risk that the shock of the operation may aggravate the diabetes and cause death from diabetic coma.

DR. JOHN C. DA COSTA.—I would like to ask Dr. Noble what was the amount of urine passed.

DR. NOBLE.—The amount of urine never became excessive.

DR. J. M. BALDY.—The diabetic feature of these cases struck me as of unusual interest. In a previous report before this Section I held that such conditions were not contraindications to surgical operation when such operation was demanded. If the suffering of the patient was great I had no hesitation to operate in the presence of diabetes. I would go further than Dr. Noble and would not hesitate to operate in the presence of three or five per cent of sugar. I have operated upon some half-dozen cases in which there was diabetes, and in some the condition was quite far advanced. I have seen no unfavorable results. At the discussion following the report of my cases I was about the only one holding such views. I remember Dr. Noble speaking of one case that had died of diabetic coma. I am glad to notice that his more recent experience bears out my views.

DR. ERCK.—Dr. Baldy will remember two cases, operated upon last spring, both of which were in nursing women, and in whom there was a glycosuria of about one per cent, which disappeared within a week after operation, by which time milk secretion had been arrested. The case reported by Dr. Noble had a low percentage of sugar in the urine, other symptoms of diabetes were absent, and his patient was also a nursing woman. Such cases should not be classed as diabetic, but simply as cases of temporary glycosuria in nursing women in which the sugar disappears at the end of lactation.

¹Noble, C. P.: Three Operations upon Diabetic Patients. THE AMERICAN JOURNAL OF OBSTETRICS, 1899, vol. xxxix., No. 2.

DR. JOHN H. GIRVIN.—I did not hear the age of Dr. Noble's patient, but I would say I think the question of diabetes, or the presence of sugar in the urine, depends, in effect, upon whether the condition is one of true diabetes which occurs in young people, or the glycosuria which appears in many cases during the menopause or after 40. I have seen two cases operated on after 40 with glycosuria and no bad results followed. The only cases I can recall with bad results were those in which operation was performed on diabetic cases in younger people who had what might be called true glycosuria, with the symptoms of diabetes, the large amount of urine, thirst, and other conditions usually present.

DR. JOHN C. DA COSTA.—I do not hesitate to operate upon a patient with a small amount of sugar, but should not care to operate in the presence of a large amount of sugar, particularly if there was much albumin or many casts. I asked Dr. Noble the amount of urine, thinking it has much to do in deciding whether operation should be performed. In one case showing marked diminution of urine proper treatment was instituted and the amount of urine increased from seven ounces in thirty hours to nineteen ounces in twenty-four hours, and in a few days to over thirty. In such a case I would hesitate to give ether or to operate at all until the condition was improved.

DR. NOBLE (closing).—Some time ago, when I made the report of the cases and we had a discussion on the subject, the attitude which I took was exactly the same as in this paper. Those three cases were all older women; in none of them were the symptoms of diabetes at all marked. One case, in which the amount of sugar was considerably greater than the others, died. In that discussion two cases were reported in which after rather trifling operations the patients died of diabetic coma. I think it is undoubtedly true that in true diabetes the combined influence of the anesthetic and shock increases the diabetic symptoms. In my own practice, unless the indications for operation were urgent, I would be inclined to treat the diabetes if the amount of sugar were over two per cent. It has been my experience that codeia and diet have a marked effect upon glycosuria. In one case the sugar disappeared not only after the cessation of lactation, but on antidiabetic diet and codeia. The influence of lactation has occurred to me. I feel that we should operate when the indication is marked, but I would not have such an optimistic view of the situation as that indicated by Dr. Baldy.

I think glycosuria is not common. All of my patients operated on have had the urine examined and in the entire number there have not been more than six cases of glycosuria.

DR. J. M. BALDY.—My remarks were in regard to cases of true diabetes. The cases Dr. Erck speaks of were operated upon since the discussion mentioned. In the cases operated upon there was true diabetes with the concomitant symptoms.

DR. CHARLES P. NOBLE reported

A CASE OF HEMORRHAGE FOLLOWING ABDOMINAL SECTION, WITH
REMARKS.

Mrs. S., aged 33, mother of three children, was admitted to the hospital on February 11, 1901. She complained of profuse menstruation, leucorrhea, and pain in the left iliac region dating from the delivery of her last child in April, 1898. Examination showed a laceration of the perineum and cervix, a retroversion of the uterus, and also a dermoid cyst of the left ovary the size of a small orange.

She was operated upon February 13. The operation consisted of curettage, trachelorrhaphy, perineorrhaphy, left salpingo-oöphorectomy, and hysterorrhaphy; the duration of the series of operations being fifty-five minutes. She stood her operation well and was put to bed in good condition. The left salpingo-oöphorectomy was a very simple operation, the mesosalpinx and mesovarium being particularly lax, so that the pedicle was easily secured, and the button left was larger than usual. Because of the flaccid character of the tissues, the classical Thomas tie was used for the pedicle.

Some time (two hours) after the operation the patient was found to be profoundly shocked, with a failing pulse which did not respond to stimulation, indicating clearly that she was suffering from internal hemorrhage. Preparations were at once made to reopen the abdomen, but before this could be done the pulse had almost disappeared at the wrist. Hemorrhage was due to retraction of the uterine end of the pedicle, probably induced by the hysterorrhaphy sutures. The pulse at the conclusion of the operation was 160 and scarcely to be felt. Under full stimulation, including hypodermoclysis, reaction ensued. On the second day the pulse had dropped to 120, on the fourth day to 98, and on the fifth day became normal, after which convalescence was uninterrupted.

The case is reported for the purpose of making some remarks upon the subject of hemorrhage following operation. Eleven years (April 19, 1890) have elapsed since this accident has occurred in my practice, during which time 1,275 abdominal sections have been performed. The first case was one of double ovariectomy with edematous pedicles, hemorrhage being due to the fact that one of the ligatures was not tied sufficiently tight. The first patient also made a good recovery after reopening the abdomen and securing the bleeding point. This experience indicates that with care so-called secondary hemorrhage after operation can be made one of the rarest of surgical accidents. This statement does not refer, of course, to slight oozing from torn adhesions, but to hemorrhage from defective ligation of pedicles. Secondary hemorrhage is to be prevented by so placing the ligatures that they will secure the trunks of the vessels supplying the field of operation. In salpingo-oöphorectomy one ligature should secure the ovarian artery and one the anastomosing

branch of the uterine and ovarian arteries. These ligatures should be so placed that they are independent of any others which may be needed in the particular case in hand. It was the failure to act upon this principle which led to the hemorrhage in the case reported. The mesosalpinx and mesovarium being so unusually long and flaccid tempted me to resort to the classical method of ligation, but, when the uterus was drawn up to the abdominal wall and sutured, enough tension was created to cause retraction of a part of the stump. In hysterectomy security against hemorrhage is even greater than in salpingo-oöphorectomy, as the four main arterial trunks can be easily secured. The question of ligature material, in my judgment, plays a very small rôle in the prevention of hemorrhage. In about half of my cases silk has been used, and in the other half catgut, with equally good results. The result depends upon the care with which the operator ties his ligatures rather than upon the material employed.

DR. J. M. BALDY.—I think one of the most distressing deaths I ever had following operation was similar to that reported by Dr. Noble, death following removal of the ovary on one side with hysterectomy. The case occurred in my experience half a dozen years ago. There was sudden dropping of temperature with rising pulse. The abdomen was opened upon the recognition of the hemorrhage, but there had been too much loss of blood to save life. The conditions were much the same as those in Dr. Noble's case; the ligature on the ovary had been apparently satisfactory, but in drawing up the uterus to the abdominal wall traction weakened the ligature and caused hemorrhage. I have always placed an extra ligature on each side of the stump since then in similar cases, and if a pedicle has since slipped no harm has been done. A few weeks ago I had one of my residents do an operation of this kind, and in this operation the ligatures on both sides the stump were not placed. In a few days the temperature became high, and a mass was found bulging in the posterior cul-de-sac, apparently in the connective tissue. The patient had done badly the first night after the operation. About a pint of blood was found in the pelvic cavity. Fortunately adhesions had formed which limited the hemorrhage. The hemorrhage was checked and the woman's life saved. This was probably the first case in years in which I had failed to have the extra ligatures placed and the accident happened. It is always a safe precaution to employ the extra ligatures of which Dr. Noble has spoken, placing fine catgut or silk around both ends of the cut vessel independent of the stump.

DR. BEYEA.—Fortunately, I have never seen a case of secondary hemorrhage from slipping of the ligature in any of my own cases or those of Dr. Penrose. That is among at least a thousand celiotomies. The nearest approach to this accident which I have witnessed occurred in a similar way to that spoken of by Dr. Baldy. Dr. Penrose allowed his assistant to tie the

ligature on one side in salpingo-oöphorectomy. It was the link ligature. Just before closing the abdomen he noticed the ligature had slipped. It was again placed and tied, and there was of course no further trouble. The objection to this ligature is that the apex of a cone is tied and with the retraction of the tissues the ligature easily slips off. Since this experience we have first placed a ligature through the infundibulo-pelvic ligament just a sufficient distance to include the ovarian artery with a small amount of tissue, and another at the uterine cornu, also containing only sufficient tissue to include the ovarian artery. The tube and ovary are then cut away, and if bleeding occurs between the two ligatures the point is caught up and surrounded by a suture of finer material and ligated. There is no tension on the ligature, and with retraction of the tissues it cannot possibly slip. Of course it is important to leave a good-sized button of tissue beyond the ligature. Another point is that the stump should always be carefully inspected with the pelvis lowered before closing the abdomen.

DR. JOHN C. DA COSTA.—I have been extremely fortunate in my operations in not having the ligature slip, and do not remember a case of secondary hemorrhage. In the beginning of my experience this may have been the result of good luck, but of late years I make a button on the stump. After tying the ligature tightly I whip the peritoneum over the stump, catching all the vessels I can. This takes but little time, and the result is a rounded button above the ligature, over which the ligature cannot slip and which does not form adhesions. If any blood oozes out it soon forms a clot and the bleeding ceases. I do not know that the procedure is entirely original with me. I remember that Dr. Kelly advocated a somewhat similar plan at the meeting of the Obstetrical Society ten or twelve years ago. His suggestion was to leave the stump so long that the ligature would not slip over it.

DR. NOBLE (closing).—In this case the pedicle was so long that it seemed safe to use it. The best principle to be followed is to secure the vessels without tension.

DR. NOBLE also presented

A CASE OF CYST OF INFLAMMATORY ORIGIN ANTERIOR TO THE
UTERUS: A SEQUEL OF HYSTERORRHAPHY.

Mrs. D., aged 44, a nullipara, consulted me March 18, complaining of backache, legache, of being easily tired, and of a post-operative ventral hernia. She reported that a hysterorrhaphy had been performed four years before, and that following this operation from time to time three abscesses had formed, two of which had discharged from the abdominal wound and one through the vagina. On examination, in addition to the post-operative ventral hernia, the uterus was found enlarged, semi-cystic, and fixed to the abdominal wall. The cause of the elastic "feel" of the uterus was obscure, as cystic degeneration of a

fibroid tumor no larger than the uterus in this location is extremely rare.

Abdominal section was performed May 4. When the abdomen was opened, what appeared to be a subperitoneal cyst was found anterior to the uterus and occupying the space which normally contains the full bladder. A cyst of inflammatory origin was suspected, but it was thought best to attempt its extirpation. After separating the cyst from the uterus for some distance, it was ruptured, when it was apparent that the cyst was one of inflammatory origin, its walls being made up of the uterus behind, the bladder in front, and the vaginal wall below. The wound in the cyst wall where it had been separated from the uterus was closed by two layers of catgut sutures, first packing the cavity of the cyst with gauze. The operation was concluded by performing hysterorrhaphy and by repairing the ventral hernia. The final step in the operation consisted in incising the anterior vaginal wall in front of the cervix and making an opening into the cyst cavity from below, drawing some of the gauze into the vagina for drainage. The patient has made a smooth convalescence, and the final cure must depend on securing obliteration of the sac through dependent drainage.

The case is reported as constituting one of the rarer accidents in connection with hysterorrhaphy. Every surgeon has frequently met with cysts of inflammatory origin in various parts of the peritoneal cavity, but this is the only one having its location in the utero-vesical pouch with which I am familiar.

DR. C. H. JUDD read some

NOTES ON A RECORD OF EIGHT HUNDRED AND FIFTY CASES OF
ETHERIZATION.

The physical examination included heart, lungs, and urine. Drawing my opinion from these cases, ether is a safe anesthetic in any compensated heart murmur and in many murmurs only partially compensated for, the pulse rate, volume, and muscular sound of the heart very frequently improving after complete anesthesia; this was most marked in cases coming to the table in partial shock, also in hysterical women with organic or functional murmurs.

The gauze method, a chloroform dropper, and oxygen were used in all cases. Oxygen increases the amount of ether required for the entire operation but slightly, if at all, and decreases the number of cases of vomiting and shock very materially.

Intelligent patients undoubtedly take the anesthetic with more comfort to themselves and the etherizer if they are told what to expect; in this way the time and amount of ether to produce relaxation can usually be diminished, and there is also much less mental and physical excitement.

The average time to produce complete etherization was from ten to fifteen minutes, over seventy-five per cent requiring a quarter of an hour. This time limit has become of value in de-

termining when the patient is ready to be operated upon. To reduce the time below this average, except in a few cases, a great increase in the quantity of ether would be necessary and much additional discomfort to the patient. It is often advantageous to allow five minutes more for this stage. The time required is further influenced by the peculiarities and physical conditions of the individual. As an example of physical conditions, a septic case was ready for operation in six minutes; a number of hysterical women required from twenty to twenty-five minutes. Consciousness is nearly always lost in ten minutes.

The amount of ether to produce complete anesthetization has varied from one to two ounces, the usual quantity being two ounces. This also varies with the physical and mental conditions of the patient and with the body weight.

It is important to give the anesthetic slowly at first, and to lift the gauze from the face a number of times during the first five minutes. These points aid in increasing the comfort of the patient and in decreasing the physical and mental excitement.

The average entire amount of ether for laparatomies has been three and one-half to four ounces. Curettements were usually finished with from one and one-half to three ounces. One Cesarean section was completed with three ounces.

The after-effects in this series have been encouraging. Vomiting has occurred in ten per cent of cases who have completely returned to consciousness. There has been no case of serious inflammation of the respiratory tract; one case of kidney trouble, but of doubtful relation to the ether; no deaths.

In conclusion, I would like to mention a primary relaxation which appears just after consciousness is lost, and is suitable for short operations; also the effects of temperature, atmospheric pressure, and quality of the ether upon the total amount required.

DR. J. M. BALDY.—I believe that every institution ought to have a paid anesthetizer and that anesthetization by internes ought to be stopped. Many deaths put on the records as due to kidney or heart troubles are undoubtedly the result of faulty anesthetization. A delay of from fifteen minutes to an hour in beginning an operation is a very ordinary thing. Sometimes there are reasons for it and sometimes there are not. The condition of the patient herself, and the confidence with which she goes into the hands of the anesthetizer, have much to do with the effect of the anesthesia. You cannot expect a man just out of college to give ether intelligently. It is a matter requiring as much skill as the operation.

In the question of heart murmurs and conditions of the kidneys my conclusions are much the same as those of Dr. Judd. I have had more trouble following enlargement of the thyroid gland than from anything else.

I use the Allis inhaler. The gauze mentioned by the doctor is good only in the hands of an expert. I agree with the doctor

that a talk with the patient beforehand will do much to lessen the trouble. It is well to apply the cone without any ether at first. The method principally in vogue is saturating the ether cone and drowning the patient with ether. It is a rare case in which the ether does not at some stage fall on the face. The habit of putting the fingers in the eyes is abominable. We can tell perfectly well by the laxness of the muscles and the breathing of the patients the degree of anesthesia present. The necessity to grasp the tongue with the forceps seems to me to indicate faulty etherization and a custom which the anesthetizer ought to be ashamed of. I believe that every institution ought to have a paid anesthetizer as well as a paid pathologist. The lung and bronchial complications I consider more important than any others in relation to the anesthetization.

DR. BEYEA.—I agree that every hospital ought to have a paid anesthetizer. It has been my experience that while some men are capable of giving ether so that no complications occur, others have complications in many of their cases. The best method of administering ether cannot be taught, nor does it depend upon a particular inhaler or the amount of ether given, but it is the personal element that makes the successful anesthetizer.

DR. WILLIAM R. NICHOLSON.—I do not entirely agree with all the sentiments expressed. I do believe with Drs. Baldy and Beyea that every institution ought to have a paid anesthetizer. I do not see, however, where the present race of anesthetizers is to come from, unless the internes are trained to give ether. I have given ether and learned to give it in general hospitals, though the knowledge has been refined in special hospitals.

Regarding the cases with complicating pneumonia and bronchitis, I think if these cases were carefully observed before ether was started it would be found that there was lung and bronchial disturbance at the time.

I agree with Dr. Baldy that touching the eye is a barbarous method, as is also that of grasping the tongue. The size of the pupil will give a better knowledge of the condition of the patient than the muscular relaxation. I think the necessity of pulling the tongue forward with forceps ought to be looked upon as a surgeon looks upon death from hemorrhage, as something to be ashamed of.

DR. JOHN H. GIRVIN.—I have been interested in the question of securing a paid anesthetizer for the Presbyterian Hospital, and I am perfectly convinced that in the large general hospitals it is just as important to have this special officer as any other member of the staff. There is no doubt but that the mortality in major operations, the abdominal operations particularly, is increased by the way ether is given in ordinary hospitals. It is very well for the resident to acquire some knowledge in this respect, but he can acquire it, with much better results for the patient, from a paid anesthetizer than by unaided experience.

I think Philadelphia has long needed a man who would de-

vote himself practically to the administration of anesthetics. I hoped that the discussion would bring up the question of some of the different forms of giving anesthesia at the present time.

I have never had any experience except with the Allis inhaler, which I have felt was the safest method. As much harm cannot be done with it as with many of the other forms of inhalers. In looking over records kept for some years, I have copied some statistics from a record of fifty consecutive abdominal operations in which I had given the anesthetic with the Allis inhaler. The average amount of ether to produce complete anesthesia was three and one-third ounces; average time was twelve and one-half minutes. Out of those fifty cases, only six cases required over fifteen minutes. The highest time required was twenty minutes. The average total time under the anesthetic was sixty-three minutes, and the average amount of ether seven and two-thirds ounces, which would mean one ounce for every twelve minutes after the patients were put under ether. There were no complications in any of these cases. I think the result of the anesthesia, as that of the operation, depends on the technique. I agree with Dr. Judd in the importance of gaining the confidence of the patients, describing to them what is to take place and telling them how they may overcome it. Beginning the anesthesia slowly, or at first using no ether on the inhaler, is advisable. After the first choking sensation is passed the ether can be put on as fast as necessary. The forceps for the tongue should be practically never necessary.

I believe that in all the pneumonia and bronchitis complicating anesthesia cases there has been previous congestion. This is also true in cases of intense secretion of mucus. I agree that heart murmurs are not contraindications for the administration of ether. In kidney conditions showing casts the length of the administration should be considered. Such cases are followed by diminished secretion of urine with the consequent ill effects. If there is absolute necessity I think ether may be given. In many cases where a plastic operation is to be done, a few days will sometimes clear up the kidney condition and ether can be taken very well. In four cases operated upon within the last two months where an excess of ether was used, there was diminished secretion of urine with headache, nausea, and vomiting. One only had albumin in the urine, but ether was administered.

DR. J. M. BALDY.—I have seen hundreds of cases of bronchitis with no bad effects following etherization. I believe that but few of those cases are the ones that result in death. Those which show ill effects are, I believe, badly congested at the time of etherization.

In the Gyneccean Hospital one man gives all the ether. We have had but two or three anesthetizers in the institution in more than ten years. Great delay is caused in getting the patient on the table where untrained men are employed, and there are often long periods of waiting before the operation is completed.

Sometimes even in closing the abdomen the operator may have to wait five or ten minutes. Five or ten minutes may mean the life or death of the patient. The young man should be trained by a skilled anesthetizer, standing at his side at first and gradually, under instruction, assuming full control of the etherization.

DR. JOHN H. GIRVIN.—The question of time is of the greatest importance to the patient, but it is also often very important to the operator. A certain average of time in putting the patient under ether will save a great amount of time to the operator. Patients require an almost equal length of time to go under the anesthetic. Judged from the statistics, only two took under ten minutes, only six over fifteen. In sixty-five per cent of the cases the pulse was lower and better when the patient was brought off the table than before ether was administered.

DR. JOHN C. DA COSTA.—I think the Section is much indebted to Dr. Judd. While it is most desirable for an institution to have a paid anesthetizer, yet I have had some unfortunate experiences with regular anesthetizers in general hospitals. I have had, too, I might add, better etherization in one or two cases during the past two weeks from trained residents than from a regular anesthetizer.

Before operating I examine the heart, lungs, kidneys, and, in short, make a thorough examination, and would hesitate very much, unless the case were urgent, to give ether to a patient with pneumonia or bronchitis. I have a case now under treatment in which the woman's lungs were perfectly sound before operation, but within twenty-four hours after an acute bronchitis set in. On examination it was found that her lips and nose were raw from ether which had been poured through the inhaler on her face by the regular anesthetizer. I think it will be found, as a rule, that trained resident physicians administer the anesthetic very well.

While not afraid to give ether in the presence of heart troubles, I would hesitate to give ether to a patient with chronic Bright's disease where there was much albumin in the urine or many casts. I have great faith in cocaine as a diuretic in overcoming diminution in the urine.

DR. JUDD (closing).—I think the advantage of the gauze over the inhaler is that the patient receives every drop of ether put on it. In the Allis inhaler the patient may get a great deal or none at all.

DR. JOHN C. DA COSTA.—I would like to ask if Dr. Judd has ever seen Dr. Allis use the inhaler. If so, he would see that little ether is lost and that none of it goes on the face of the patient. He gives the ether drop by drop, and begins the etherization by holding the inhaler himself or by giving it to the patients. He gains their confidence and they go quickly under the influence of the ether without any mental excitement.

DR. H. D. BEYEA presented a paper on

THE CONSERVATION OF THE OVARIES AND FUNCTIONATING UTERINE TISSUE IN THE OPERATION OF HYSTEROMYOMECTOMY.¹

DR. J. M. BALDY.—The operation Dr. Beyea speaks of is the usual one done by us all, except the amputation is done a little higher. I think the preservation of the menstruating function is a mere matter of sentimentality which in one or two generations of education could be thoroughly eradicated. We leave educated womankind to believe that the menstruation is essential to her health and happiness. We know this to be nonsense and will have to re-educate woman to know the truth.

In the vast majority of fibroid tumors there is not only fibroid degeneration of the uterus, but of the ovaries, etc., even of the heart in some few cases. It is a general disease and not local. No one knows the excitation of the disease. I have not much patience with the word "conservatism." I think there is no other one word so generally used to cover ignorance and cowardice. No one man has yet pointed out or explained away or made satisfactory comparative results as to the good obtained in conserving the ovaries and the harm that is developed by leaving them. We have all had the experience of having left a part of the ovary which subsequently had to be removed for ovarian cyst or other trouble. Ovarian cysts have developed from healthy tissue left behind. We have known of many patients who, after removal of one appendage, have returned for the removal of the other and of the uterus. It is nonsense to say that they are not womanly women, that they grow hair on their faces, or are not better off without these organs than with them. To all appearances they are happy, contented women. I believe we often risk the future health of our patients by leaving the organs in very many of these operations. The organs have but one use—procreation. If that is impossible or undesirable, then I believe the future health of our patients is our first consideration, and for my part I have not much faith in the tendency to the universal so-called conservatism of the day.

DR. JOHN B. SHOBER.—I have listened with great interest to Dr. Beyea's paper. It seems to me that the majority of cases of fibromyomata are complicated by ovarian and tubal disease. When we find normal ovaries and tubes I am in favor of leaving the normal ovaries. I cannot see any advantage in leaving the tubes in this condition. Where there is a probability of future pregnancy it is different. The tubes, however, are but ducts and have no function. By leaving the ovaries women are spared many of the symptoms of the surgical menopause. I can see no objection to amputating the uterus above the internal os, except that it does result in a future menstrual discharge, which, as Dr. Baldy has suggested, is a function entirely unnecessary in these cases where pregnancy is impossible. After the fundus is removed there is no reason in my mind for leaving behind the

¹See original article, p. 324.

oviducts, and no further reason for attempting to preserve the menstrual function. I am in favor of conservatism in leaving ovaries which we feel sure are normal. There are cases on the border line and we do not know sufficiently yet when we have diseased ovaries. If we are in doubt we should remove them, because there have been many cases reported in which cystic disease of the ovary has occurred secondarily from their being left.

DR. BEYEA (closing).—I cannot agree with Dr. Baldy that the preservation of ovulation and menstruation in an operation when conception is impossible is simply a matter of sentiment. I believe the preservation of these functions and the prevention of the artificial menopause are of the greatest value to young women. It is impossible to preserve ovulation and prevent the menopause for any length of time without also having menstruation continue. That this is true is proved by the investigations of Abel in fifteen cases where the ovaries were left in position and the uterus amputated at or below the internal os. In all of these cases the menopause followed and the ovaries had atrophied and practically disappeared within three or four years after operation.

The question whether pathological changes are present in the ovaries when the uterus contains a myoma is one that has caused some study and discussion. Some believe that the pathological changes are of inflammatory nature; others that it is not an actual pathological change, but a simple hyperplasia of the ovaries. Clinically, every one of experience knows these ovaries are very frequently normal. They are only diseased when the seat of a new growth or when there is an associated inflammation of the tubes. They have frequently been left behind in hysteromyomectomy, and one cannot find mention made of their causing other than normal symptoms. A search through the literature shows but two cases where it was necessary to perform a secondary operation for disease of these ovaries. I would say that Dr. Baldy's theory, that pathological changes develop frequently in these ovaries, is not a warrantable one.

As Dr. Shoher said, it is unnecessary to leave the tubes. They are left simply because I believe it would be a waste of time to remove them, since they can do no harm. I cannot appreciate, after studying this subject of conservatism as here practised and the various phases of possible complications which might follow, how this operation can result in any harm. Possibly painful menstruation might follow in rare instances, yet there is little evidence to show that it would. I know of one case operated upon by Dr. Hirst where, for seven or eight years after hysterectomy in which the ovaries were left, the woman had a great amount of pain at the time of each menstrual period. It was necessary to remove the ovaries in this case.

DR. SHOHER.—May I ask Dr. Beyea if the object of this more extensive myomectomy is not simply to preserve the menstrual

function in a limited condition for a few more years? It has seemed to me that the only object in leaving the ovaries behind is to prevent the woman from suffering the symptoms of the surgical menopause, which object is accomplished after two or three years.

DR. BEYEA.—Answering Dr. Shober's question, I would say that the object of the operation is to preserve ovaries, corporeal endometrium, and muscle tissue of the uterine body, so that the functions of these tissues may continue to the time of the natural menopause.

DR. J. M. BALDY.—I would like to ask Dr. Beyea if he means there have been only two cases in which the ovaries were left showing recurrence of disease.

DR. BEYEA.—Yes; I was able to find but the two cases reported where ovaries left in position underwent pathological change which necessitated a secondary operation.

DR. BALDY.—To what class of cases does Dr. Beyea refer?

DR. BEYEA.—For a number of years the ovaries have frequently been left in position in performing hysterectomy for carcinomata and myomata of the uterus. In a review of the literature of these cases for the report of secondary operations for disease of these ovaries I have been able to discover but two cases—one by Dr. Baldy where an ovary was accidentally left in position in a hysteromyomectomy with extraperitoneal treatment of the stump, and the other by Martin where an ovarian cystoma developed from the ovary left in position.

DR. BALDY.—It makes no difference whether the ovary is left in hysterectomy or in any other operation. An ovary is an ovary. The point is that the disease is such as would possibly affect both ovaries, and the portion left may develop into trouble. In cancer diseased ovaries and tubes are rare. We can exclude that class, and that is the only class in which Dr. Beyea states he has had much experience. There are hundreds of cases in which the ovary was retained and there was a return of trouble on that side. Literature is full of such cases. I cannot see, therefore, why Dr. Beyea should assume that the two cases to which he refers are the only ones simply because hysterectomy happened to be done on them; the other class are perfectly germane to the subject and are just as valuable for drawing conclusions as are these two. The only reason it has not occurred oftener after hysterectomy is because few such operations have been done and no sufficient time has elapsed for the trouble to develop and be reported. If Dr. Beyea will have a little patience there will be plenty of them in the literature.

DR. SHOBER.—I would like to ask Dr. Beyea if he has in mind conservative operations done upon diseased tubes and ovaries, and if there has been in only two cases a return of the trouble.

DR. BEYEA.—I am speaking only of cases in which I consider the ovaries to be normal.

DR. BALDY.—It makes no difference what the disease is. The

ovary may be considered normal and left, but it may subsequently become diseased. It will happen after hysterectomy as well as after unilateral ovariectomy or when a small piece of ovary is left.

DR. BEYEA.—I am sure that in a very painstaking search through the literature one is unable to find more than the two cases I have referred to. This is the only evidence one can gain on the subject. I cannot, therefore, agree with Dr. Baldy that pathological changes are frequent and secondary operation would often be necessary.

TRANSACTIONS OF THE AMERICAN GYNECOLOGICAL SOCIETY.¹

PROCEEDINGS OF THE TWENTY-SIXTH ANNUAL MEETING, HELD IN CHICAGO,
MAY 30, 31, AND JUNE 1, 1901.

*The President, ELY VAN DE WARKER, M.D., of Syracuse, N. Y.,
in the Chair.*

RESECTIONS AND EXSECTIONS.

This paper was read by DR. FERNAND HENROTIN, of Chicago.

The author presented the salient points concerning the questions involved in resection of the ovaries and tubes, as there is still much doubt regarding the results obtained and as to the proper methods to pursue. He considered the subject of resection and exsection under three heads.

1. *Diseases involving the tubes.* Salpingotomy and tubal resection are most undesirable operations, and only the most formally expressed desire for offspring on the part of the patient, after explanation of the uncertainty of results, will warrant their performance. Pyosalpinx always demands exsection, and any tube materially damaged by any disease should be removed in its entirety.

2. *Ovarian disease.* All diseases of the ovaries adjudged to be non-malignant can be cured and should be treated by resection of the diseased portions only. Recent ovarian abscesses can be cured more quickly, more certainly, and with less danger by vaginal incision when this is practicable. When the abscess is of long standing, the sac should be removed, but even then some healthy ovarian tissue can almost invariably be preserved.

3. *Chronic composite diseases.* In most diseases of a composite nature in young women, when the tubes and ovaries are materially and equally involved, salpingectomy with ovarian resection is the most satisfactory operation, the uterus being retained.

These three topics were taken up *seriatim* and discussed at great length. The author has performed at least 250 operations

¹Concluded from p. 241, August JOURNAL.

which might be classified as salpingotomies, salpingectomies, and ovarian resections. He could safely state that 40 per cent may be termed delayed and partial cures or failures. Of this 40 per cent, the heaviest proportion by far comes from such as have had salpingotomy or tubal resection performed. The next most complaining class are those in which the ovaries alone were resected, and the least suffering and the best health are found among those in whom the tubes when affected were entirely excised and the whole or portion of the ovaries was removed. He had not had to reoperate more than five or six times. By salpingotomy the author means opening into the lumen of the tube, and by tubal resection is meant the removal of a portion of a tube, including the mucosa, and his statement presumes a material pathologic alteration in the portion removed or incised. Under such conditions he had no hesitation in stating that for every baby born there would be forty uncured or partially cured patients.

DR. CHARLES A. L. REED, of Cincinnati, Ohio (by invitation), opened the discussion by saying that the underlying impulse of the profession was one of conservatism. Its mission was to save and restore rather than to destroy; therefore any method or procedure which promised to retain intact not only organs but their functions commended itself with peculiar force. When Martin inaugurated the practice of conservative resection of ovaries, he looked upon the proposition askance. He was prompted to do so by the teachings of the late Mr. Lawson Tait, who, after having left an apparently undegenerated ovary on one side, after removing a diseased ovary from the other side, was so frequently called upon to do the second operation that in his very excellent work he promulgated a principle which the speaker believed would sooner or later influence materially the operative work of gynecologists, namely, that where destructive changes had taken place upon one side the probability of similar changes occurring on the other side was so great that it was well enough to advise the patient of that fact, but that no organ should be removed without the patient's knowledge and consent. This had been his practice, and in carrying it out he had leaned rather more to the side of conservatism than he did at the present. He recalled a series of six cases in his public service at the Cincinnati Hospital, in which, after removing the appendages from one side, he left apparently uncomplicated and undiseased appendages upon the other side, and in all six of those cases he had since had occasion to do secondary operations. He recalled three cases in particular in which he had done ovarian resection, leaving both organs, and in which pregnancy had taken place, two of the women going to term, but in two of these three cases he had had occasion to do a secondary operation upon the request of the patients to be relieved from pain and suffering.

DR. HUNTER ROBB, of Cleveland, Ohio, said his experience was confirmatory of the observations so interestingly detailed by the essayist. After having had experience in taking out the ap-

pendages on one side, even where they were only slightly diseased or adherent, or suggestive of inflammatory changes, and having had experience in trying to save some of the structures on the other side, he had come to the belief that it was better in the great majority of cases to save all the structures, if possible. He had come to believe this from a pathological standpoint in examining specimens under the microscope. Take an ovarian abscess. We would find the source of infection in the majority of instances travelled from the vagina through the uterus, through the Fallopian tubes, and involved the Graafian follicles and cysts. We would find, in the majority of instances where the ovary had become involved, that the inflammatory changes were in the nature of excrescences; that is, there was a reduplication of inflammatory material, not implicating, perhaps, the ovary itself, and the resistance on the part of the ovary was due to its great blood supply. He had examined numerous sections of ovaries in which abscesses had occurred in all parts of the ovary in close relation to the abscess wall, and had found it, from the standpoint of inflammation, absolutely free from inflammatory changes. He believed this was largely due to the resistance on the part of the vessel and the ovarian stroma, which was found practically normal. From a pathological standpoint it was reasonable to attempt to save a portion of an ovary, be it ever so slight. During the last few years he had made this his practice in his clinic, and had not had occasion to regret it. In seventy-two pus cases he had carried out conservative measures whenever possible, saving only as much as one-third of an ovary in some cases, bringing the cut surfaces together, and in not a single instance had he had occasion to regret this procedure.

DR. A. PALMER DUDLEY, of New York, said that he began this work twelve years ago. He had naturally laid himself open to criticism. A few days ago, in New York, a gentleman reported a case of vaginal hysterectomy and exhibited the specimen. The patient was a girl 16 years of age. The operation was performed simply for procidentia with elongated cervix. He asked the gentleman in the discussion: "Were that your daughter, would you submit to it? Would you give your consent? Were it your wife, would you give consent?"

Once a patient came to him suffering with disease and said: "Doctor, if you can save my menstrual function, will you do it?" "Yes." One-half of each tube was bisected and removed; one half of each ovary was removed. The patient recovered. She went into the hands of some students, was injured, suffered from a pelvic hematocele, and he was called upon to do a second abdominal section. The same question: "If you can save my menstrual function, will you do so?" "Yes." He operated, and left one-half of one tube and ovary on the right side, and his assistant attended that woman in confinement. She was delivered of a full-term child while he was in Europe last summer.

In one case a girl was deprived of her ovaries and of happiness for life. The other was made happy by an experiment, granted

it was a good one. The points that guided him in doing this work were: first, the age of the patient to be operated on; second, the social position of the same; third, previous family history, patient's preference in the matter, etc. All diseased conditions associated with all of the appendages should be considered. The reasons for each condition mentioned should be given. He would not dream of doing such plastic work upon the ovaries of a patient who was nearing the menopause. The social position of a patient influenced him materially. A hard-working, daily-toiling woman was not a fit subject for such work. Cases presenting a history of constitutional taint, such as syphilis, gonorrhea, or tuberculosis, would deter him from doing this work.

In any tube in which pus is septic, either from specific infection or from septic infection, the contents of the tube would have a marked and distinctive odor; whereas pus the result of congestion, of occlusion, or of retained secretions in the tubes, would have no odor, and in those cases, if the opening into the uterus was patent or he could make it so, he would wash the pus out and drop the tube back without the slightest danger. He had done it repeatedly without any untoward results. He had yet to report the first death as the result of it.

DR. LAPHORN SMITH, of Montreal, did not agree with Dr. Dudley in regard to leaving tubes that had contained pus. Four years ago he removed pus tubes from a married woman, and was requested by both her and her husband to leave the ovaries. He left the ovaries, and the woman has not been well since. In another case he did vaginal section and left the tubes open, hoping that the girl after marriage would have a family, but the girl died as the result of leaving the tubes. Nothing did gynecology more harm than to do secondary operations on these cases. Many of these women were afraid to undergo secondary operations because they had had friends who had died after secondary operations.

The argument was frequently advanced that if the women bore children they were well. Women could have children and suffer all the time they were carrying them. In his judgment, it meant a failure if a woman had suffered ever since operation. His experience had been that these patients could be relieved from pain and suffering in the majority of cases if they would give their consent to let him do everything he deemed necessary. If a woman said to him, "I would like you to leave one ovary," he would reply, "If I leave it, you must take the chances of future suffering. On the other hand, if I remove it I do not think you will suffer." In those cases in which he had cut out a portion of the ovary and had left two little V-shaped valves on each side about one-eighth of an inch long, and had made use of fine catgut stitching, menstruation had continued where both tubes had been removed. That was enough to keep up the function of menstruation, and the patients had not suffered for some reason.

DR. T. A. REAMY, of Cincinnati, Ohio, thought the last speaker was a little inconsistent in some of the statements he had made.

He said that the woman in whom he (Smith) left the ovaries was not relieved of her suffering. If the ovaries were diseased, he (Smith) ought to have removed them. In the patient in whom he (Smith) left a piece of ovary of special shape and form, the woman did not suffer. The logic of the proposition of Dr. Smith would seem to be that in this instance he happened to leave a portion of the ovary, which sustained the function of menstruation, yet he did not relieve the pain for which the woman was operated. If there was a pathological condition sufficiently marked to demand the removal of those organs, then the mission of Dr. Smith for conservatism led him to make an error in the recognition of the nature of the case, and he ought to have removed the ovaries because they were diseased.

Speaking of the possibilities of maternity after these operations, Dr. Reamy remarked that one of the highest functions of woman was to become a mother; that it was a God-given privilege; that it was only by the exercise of that privilege the State could subsist, society endure, or a family could be raised. It was an outrage upon common sense, upon learning, and upon morals to say that we cared nothing about whether a woman was able to bear a child or not; let her ovaries and tubes be removed. If conservatism meant anything, an attempt should be made to save whole organs and pieces of organs where it was possible to do so. He could recall many, many cases during an extensive practice which he had relieved by simply removing a diseased tube on one side, an ovary on one side and a part of an ovary on the other side. The women had not only recovered, but had borne children afterward. He could detail four such cases where he had removed an entire ovary on one side and most of the ovary on the other side, and the patients had recovered.

DR. J. MONTGOMERY BALDY, of Philadelphia, said there were two sides to the question of maternity. He thought Dr. Reamy had taken the extremely narrow stand that woman was a child-bearing animal and nothing else.

DR. REAMY.—Oh, no.

DR. BALDY.—I believe you stated that she is not entitled to judge as to whether or not she should suffer.

DR. REAMY.—I did not make any such statement as that.

DR. BALDY (resuming) said that he would include the whole class of gentlemen who belonged to the so-called conservative school of surgery in dealing with the cases under discussion, and that was practically the stand they took. They held the position that the woman had no right to say whether she should suffer or not, and perform her God-given function, but of which she was never meant by God or anybody else to be made a slave. As an honest man, if a woman came to him to be relieved of suffering, she expected that he could relieve her or she would not consult him. When she came to him, she had suffered so much that it was necessary to sacrifice that God-given function, and she was willing to undergo an operation for that purpose, if she thought it was necessary; and he was to judge as to whether or not it

was necessary. He was to judge by the pathological findings. It was not good surgery, good judgment, or good common sense to conserve unhealthy tissue. The mission of the gynecologist was to conserve health, and if he sacrificed tissue to do so he was conservative. He was not radical, in the strict sense of that term, and the man who simply conserved tissue and sacrificed the health of his patient was taking big chances, and that was what was being done by many so-called conservative men. They were not honest enough to explain fully to their patients what might occur to them, and they were gambling dishonestly with them.

DR. R. STANSBURY SUTTON, of Pittsburg, said that gynecologists should stand on the principles of pathology, and when they did not act in accordance with those principles it was a matter of luck if they were not left in the results which they were trying to obtain. He could not see the sense or logic in removing one half of a gonorrheal tube or one half of a tubercular tube, leaving the other half in the patient's pelvis. Surgery must depend upon the future for its success, and trifling with pathological conditions within the pelvis would, in his judgment, only bring confusion and disappointment.

DR. HENROTIN, in closing the discussion, reiterated briefly the points enunciated in his paper. A portion of a tube might be left, but the woman should know it. Leaving a portion of a tube was bad practice. He envied those gentlemen who had such good noses that they could distinguish between benign and virulent pus. Unfortunately, he did not possess any such proboscis. So far as his experience had gone, many of the women were not cured or relieved of their suffering by half-way measures or so-called conservative operations. He had seen a great many patients who were very much relieved after conservative operations on the ovaries and tubes, but they were not cured by any means. He was conservative as regards saving ovaries and uteri. He would not remove the uterus and the ovaries entirely unless the indications were unmistakable for so doing. If a man could remove two ounces of pus from two tubes, there must be a great deal of inflammation in them, and if he could effect a complete cure in such cases he was very, very fortunate; but he took it that Dr. Dudley was willing to acknowledge that it was exceptional that such a thing could be done.

DR. DUDLEY said he knew it was unparliamentary for him to speak again, but in the case he had reported the husband stood by his side at the operating table and said that he was willing to take chances on his wife.

DR. J. W. WILLIAMS, of Baltimore, Md., read a paper entitled

INDICATIONS FOR CESAREAN SECTION AS FURNISHED BY PELVIC CONTRACTIONS.

In 2,123 cases delivered in the Obstetrical Department of the Johns Hopkins Hospital, 278 (13.1 per cent) had contracted pelves. The pelves were measured both externally and internally, and designated as contracted when the conjugata vera

was 10 centimetres or less in generally contracted, and 9.5 centimetres or less in flat pelves. Nine hundred and forty-one of the patients were white and 1,182 black. Contracted pelves occurred in 6.91 per cent of the former and 18.1 per cent of the latter—that is, in every fourteenth white and every sixth black woman. One hundred and ninety-nine of the 278 cases ended spontaneously (71.58 per cent). The number of spontaneous labors decreased with the increase in the pelvic contraction, as shown by the following table:

Conjugata vera	10-9	cm.,	77.28	per cent	spontaneous.
"	8.9-8	"	61.54	" "	"
"	7.9-7	"	33 $\frac{1}{3}$	" "	"
"	6.9-5.5	"	0	" "	"

The cases requiring operation were delivered by high forceps, version, symphyseotomy, Cesarean section, craniotomy upon the dead child, or embryotomy, according to circumstances, giving a gross fetal mortality of 12.96 per cent, and a gross maternal mortality of 2.88 per cent, which, by deducting the cases in which the death of the child or the mother was not due to the operation, gave a corrected mortality of 4.32 per cent and 0.72 per cent respectively.

In view of the markedly improved results following Cesarean section, the indications for its performance should be widened. Thus we find that Zweifel, Olshausen, Reynolds, Bar, Charles, and Cragin have performed 162 operations with 5 deaths, a mortality of 3 per cent. He therefore believes that in uninfected cases the upper limit for the absolute indication for Cesarean section should be advanced from 5.5 to 7 centimetres and the relative indication from 7 or 7.5 to 8.5 for flat and 9 centimetres for generally contracted pelves. With the absolute indication, the operation should be done either at the end of pregnancy or the onset of labor; but when the relative indication is present the woman should be allowed to go into the second stage of labor, and have bearing-down pains for one hour, when, if the head does not show signs of moulding or descending, Cesarean section should be performed instead of forceps upon the movable head or version. So that at present Cesarean section for the relative indication should compete with high forceps or version, instead of with craniotomy upon the living child as in the past. On the other hand, if the patient be infected, or her surroundings such that an aseptic operation cannot be performed, high forceps or version should be attempted, followed by craniotomy in case one fails to deliver the child by their means, and Cesarean section reserved for those cases in which an absolute indication is present on the part of the pelvis.

DR. EDWARD REYNOLDS, of Boston, read a paper entitled

CIRCUMSTANCES WHICH RENDER THE ELECTIVE SECTION JUSTIFI-
ABLE IN THE INTEREST OF THE CHILD ALONE.

The author sums up his experience and study of the subject in the following propositions:

"1. The Cesarean section performed late in labor, or in the presence of infection of the uterus or other complicating constitutional conditions, has been shown, by the experience of almost every operator who has tried it, to have so high a mortality as to be totally unjustifiable when performed in the interest of the child alone.

"2. When a Cesarean section is performed on healthy women, early in labor, and under otherwise favorable circumstances, for merely mechanical indications, it has, in skilled hands, no mortality other than the fractional percentage incidental to all considerable operations *per se*.

"3. The inconveniences and high morbidity rate of symphyseotomy render it distinctly inferior to the section as an operation of choice, but it is an operation which as compared to craniotomy, or prolonged and forcible high forceps work without it, involves almost no increased risk to life. I therefore believe it to be the operation of choice in the somewhat limited number of neglected cases (*i.e.*, those for which the Cesarean is ruled out) in which the pelvic contraction is within the range where the extraction of a living child without symphyseotomy is difficult or impossible, but after symphyseotomy is safe or easy.

"4. The induction of premature labor for contracted pelvis results in so high a fetal mortality as to be unwarranted when placed in opposition with the performance of the Cesarean section at the beginning of labor and in favorable cases "

DR. MATTHEW D. MANN, of Buffalo, N. Y., read a paper entitled

THE TECHNIQUE OF CESAREAN SECTION.

Mann first discusses the relative merits of the Sanger and Porro operations. He concludes that there is no rivalry, but that each has its proper place. The classical operation should be done in all elective cases, when the woman is in good health, the operation done in time, and all the conditions favorable. The Porro operation should be done when the uterus is septic; when gonorrheal infection is known to exist; when the uterus refuses to contract; when there are large fibroids or ovarian tumors which cannot be removed without injuring the uterus. Small fibroids usually disappear after pregnancy. Other indications for the Porro are: disease of both ovaries; when the uterus is torn or ruptured in labor; in cancer of the cervix; when the patient is greatly reduced and bearing the operation badly; in osteomalacia and bad atresia of the vagina.

The uterus should not be removed simply to sterilize the woman, as this can be done, if thought best, by removal of the tubes. In this way the woman's sexuality is not destroyed. The question of sterilizing the woman is a hard one to decide, as ethical questions are involved. She may be sterilized in the interests of possible future offspring and of society, as well as to

prevent possible future Cesarean sections; but this only at her own request.

Technique of Celiohysterotomy.—Median incision in abdomen and uterus. The removal of child and placenta. Uterus sutured with catgut. The Fritsch incision seems to be better if the placenta is in front. Uterine tourniquet to be tightened when needed.

Hypodermatic of ergot and hot applications to the uterus, and letting-up on the ether, to induce contractions. Careful toilet of the peritoneum.

Technique of Celiohysterectomy.—Same as before. Then the vessels tied on each side of the uterus, and the uterus removed, all but the cervix. The peritoneum closed over the stump.

Vaginal Cesarean Section.—This is done for cancer of the cervix and for rupture of the uterus. Few cases are on record.

Reports.—Six cases have been done in Buffalo, by four operators, with the loss of one child. One mother died, six weeks later, of carbolic-acid poisoning.

DR. CHARLES JEWETT, of New York, read a paper on

THE PLACE OF SYMPHYSEOTOMY AS CONTRASTED WITH SECTION.

He presented the following conclusions:

1. Symphyseotomy is still a useful operation within a very limited range of pelvic contraction.

2. It is suited to conditions in which only very little additional pelvic space is required for delivery.

3. It is a valuable recourse, therefore, in cases in which forceps unexpectedly proves inadequate.

4. Axis-traction forceps, with the aid of posture, should always be tried before resort to symphyseotomy.

5. Its results would be much improved by restricting it to pelves with a conjugate of not less than 7.5 centimetres (three inches).

6. Under equally favorable conditions its total mortality should be no greater than that of Cesarean section.

7. When the pelvic space permits, it should replace Cesarean section in the presence of exhaustion.

8. It may be elected primarily as an alternative of Cesarean section, when the operator can be assured that the degree of obstruction is well within its safe limit. Here the choice of operation is largely a matter of individual preference.

9. Within its proper field symphyseotomy is better than Cesarean section for an operator of little experience in abdominal surgery.

DR. A. PALMER DUDLEY, of New York, in opening the discussion on this symposium, stated that Dr. Williams had struck the keynote when he gave such statistics and results in the hands of the general practitioner. The general practitioner should be educated as to the proper methods of antepartum diagnosis,

and should know when he had a case of obstetrics under his care that was going to give him trouble. He did not believe it detracted from the general practitioner to refer his cases to such men as the essayists.

He agreed with Dr. Reynolds in regard to the elective operation. When the general practitioner placed a case in the hands of a specialist, he expected him to do that, otherwise he would take the risk himself. When the patient approached the time for confinement, she should be put in a properly equipped institution for advanced surgical procedures—and every gentleman was well equipped when he was in a modern hospital. The time had gone by when women dreaded to go to hospitals. Modern Cesarean section could be safely done, leaving the woman in such a condition that she could have future pregnancies and repeated deliveries.

The question of incision through the placenta was immaterial to him. If the placenta was attached to the anterior wall of the uterus, he thought it was safer for the child to go through the placenta to the membrane; not tear it away from the uterus, but get around it.

As to the method of suturing the uterus, some preferred silk, others catgut, and it was simply a difference of opinion between the operators and their methods of suturing. Compared with symphyseotomy and Porro's operation, he would choose Cesarean section every time, because of the fact that, if properly done, there was only one incision in the uterus; there was no danger to the bladder; the pelvic bones were uninjured, and the mother recovered, in those cases he had had, in much better condition than she would from either of the other operations.

With reference to the technique of the operation, since the advent of spinal cocainization he believed it was absolutely safe to deliver a woman by Cesarean section under this method of anesthesia. He knew the method was safe, from the fact that he did an operation not long ago, under spinal cocainization, where he used cocaine seven times too strong, unwittingly, not knowing that his assistant had prepared the cocaine to be diluted several times. The only effect on the patient was to cause a slight delirium for a few hours. Twenty minims of a two per cent solution of cocaine injected into the spine would cocaineize the woman so that one could do any form of obstetrical operation.

Dr. Dudley then detailed an improved Cesarean operation in the following language: "The patient is prepared; a jar of two or four gallons of hot saturated solution of boracic acid is placed handy; a tube from that is run to a suspended cord directly over the woman's abdomen. The incision does not come within two inches of the navel, and down to the ordinary point of the pubes. The patient is under constant suspended douches from the start to the finish of the operation. The muscles are incised, the peritoneum is opened, the cord thrown around the uterus. Each ovary and tube is lifted up, the cord is beneath

the tube, the assistant makes slow traction on it, and another assistant grasps the fundus of the uterus and the latter is quickly incised. I would just as soon cut through the uterus with one sweep as not, because the child is not in contact with that section of the uterus, and the amniotic fluid is at once treated with a saturated solution of boracic acid. The uterus is incised quickly, and the child brought out under constant irrigation. As the child is delivered from the uterus, the uterus is delivered from the abdominal cavity. The irrigation is then turned at once into the uterus (hot), and the placenta delivered under constant irrigation with boracic acid. Then it is dried, and a catgut suture used, No. 2 unchromicized catgut, which lasts for ten days. The inner portion of the lining membrane of the uterus is sewed first by a continuous suture, commencing at the top of the wound and closing at the bottom. The same stitch is carried back, taking in the muscular structure, and putting a suture through each one of the sinuses, so that they can be brought together end to end. A third suture is turned back and tied at the lower extremity, the first knot tied at the upper extremity inside of the uterus, and the last knot tied outside. Uterine contraction under the circumstances does not allow gaping of the structures of the uterus and possibly leakage, as we know there are many such cases on record, because of the fact that the sutures are pressed on one another and there is a positive line of traction. The uterus is cleansed, dropped back, and patient put to bed."

DR. HENRY D. FRY, of Washington, said he was certainly as much in favor of Cesarean section as any one, and, in the few cases in which he had done it, it had been successful to both mother and child. Sewing up the uterine wound with catgut was not as safe, because the ordinary uterine contractions which occurred might loosen the catgut knots and cause gaping of the wound in a certain proportion of cases, and for that reason silk was preferable. He would not apply catgut after the manner recommended by Dr. Dudley. He thought we ought to avoid applying sutures down to the uterine cavity on account of the danger of infection. In the ordinary method it was recommended to put the sutures to the endometrium, not into it. That was one objection he would make to Dr. Dudley's method of suturing with catgut, beginning with the uterine cavity. Another objection would be to making it a continuous suture, because if one portion became infected the whole line of suturing was gone, and this would be a serious objection to this method.

He wanted to say a few words concerning symphyseotomy. The inconvenience of symphyseotomy was no greater than that of Cesarean section. The preparations for symphyseotomy were less, fewer instruments were required, so that he did not think the objection of inconvenience obtained. He thought, if we took a case in the proper condition which we would take for Cesarean section, and do a symphyseotomy, we would not have any more

increased morbidity than after a Cesarean section. In the four symphyseotomies mentioned, he thought the essayist did them under favorable circumstances. In cases where there was a certain degree of contraction, the operator might have to decide to deliver by high forceps operation, and he (Reynolds) would try high forceps operation, and then, failing, do a Cesarean section. Those cases were not suitable for symphyseotomy. If the degree of contraction was so great that the child could not be delivered with forceps, it was a suitable case for symphyseotomy. In minor degrees of contraction, say 7 and 8 centimetres, if symphyseotomy was made the elective operation, after the method of Dr. Harris, there was very little danger, and he should certainly give it the preference.

DR. SETH C. GORDON, of Portland, Maine, said his experience with Cesarean section had been very unfavorable. He had been called in two cases where everything had been done and the women were nearly dead. One was a case of cancer of the cervix, and infection occurred from which the woman died. Another was a delayed case, and the patient lived twelve hours after the operation.

He had not used any suture except catgut since 1884, with the single exception of silkworm gut, for closing the abdominal wound.

DR. PHILANDER A. HARRIS, of Paterson, spoke of having delivered a woman of a living child with instruments who had a contracted pelvis below 7 centimetres. He did not wish to lay any particular stress upon the importance of lowering the indications for Cesarean section below 7 centimetres. Occasionally the under-size of the child would materially influence the course to be pursued, but this would occur so seldom that we might accept that as an absolute indication.

With reference to the induction of premature labor, it should occupy only a rather limited field, for the reason that many of the children died. In the induction of premature labor he would not run the risk of a slow process. It could be done safely and efficiently in one hour by resorting to anesthesia, using either chloroform or ether or subarachnoid cocainization. The hand could be introduced into the vagina, the cervix slowly dilated, taking from twenty minutes to half an hour to do so, and then version done and the child delivered. This work could be accomplished in an average of one hour with far less danger of infection and certainty of result.

DR. WILLIAMS, in closing the discussion on his part, said he had always felt that symphyseotomy was not an operation of choice at the present time and was only applicable to a small number of cases. The primary mortality, so far as the mother was concerned, was about the same whether Cesarean section or symphyseotomy was done. He did not think the results to the child were as good as from symphyseotomy. Considering the after-treatment and convalescence of patients, there was a great deal in favor of Cesarean section as opposed to symphyseotomy.

DR. JEWETT, in closing the discussion on his part, speaking with reference to the placenta, said he had usually preferred to cut through it rapidly and extract the child. He had done it because he considered the hemorrhage less than by waiting to peel it off. He had not cared to locate the placenta in advance. Certainly, he would select Fritsch's incision for that purpose.

As to the use of spinal cocainization in these cases, he would not care to employ it. Ether or chloroform, with the addition of gas, was just as efficient, and all the advantages were derived from them that could possibly be secured from spinal cocainization.

As to craniotomy, it was important for the general practitioner to know that it should not be absolutely condemned on the living child.

DR. HOWARD A. KELLY, of Baltimore, presented a paper on
SCRATCH-MARKS ON THE WAX-TIPPED BOUGIES IN DIAGNOSIS OF
URETERAL AND RENAL CALCULI.¹

DR. HENRY D. FRY, of Washington, D. C., read a paper on
THE RELATIVE MERITS OF BIPOLAR VERSION WITH SLOW EXTRACTION
AND ACCOUCHEMENT FORCÉ IN THE TREATMENT OF PLACENTA
PREVIA: REPORT OF FOURTEEN CASES.

The advantage of bipolar version is the ability to successfully perform it with very little dilatation and with consequently less loss of blood. Statistics based on the collection of a large number of cases treated after this method were wanting until the publication of the work of Lomer, Behm, and Hofmeier. The result was astonishing when reviewed in contrast with the mortality of the old method. Seventeen years have elapsed and the brilliant results obtained by these operators have not popularized the treatment.

Suppose we compare theoretically the bipolar method with accouchement forcé, and see if there exists any reason why the former may be considered safer in the hands of the inexperienced operator. In placenta previa a fatal result is usually due to hemorrhage or sepsis. The hemorrhage is unavoidable and incident to dilatation of the os. Consequently the method requiring the least degree of dilatation necessary to perform version will naturally be expected to give the least hemorrhage. After dilatation is obtained in sufficient degree to insert several fingers, further continuance of the process by manual means is likely to endanger the integrity of the soft parts. In other words, the artificial dilatation sufficient to perform bipolar version is comparatively safe, while that necessary for the insertion of the hand and internal version is dangerous. The rapid delivery of the infant in accouchement forcé adds additional risk of rupture.

¹This paper will appear in a succeeding number of the JOURNAL.

There is one serious objection to bipolar version and slow extraction. The infantile mortality is greater. When interference is necessary before viability or when the fetus is dead, slow delivery is certainly indicated. If the life of the child be endangered during slow extraction, the obstetrician must decide between it and more rapid delivery with its increased maternal risks.

DR. MATTHEW D. MANN, of Buffalo, had followed the admirable method referred to by the essayist for several years. He had not looked up his statistics, but he had had between ten and fifteen cases without a death where this method was followed. It seemed to him it was most rational, reasonable, and promised to be the most successful of any method since Lomer reported 111 cases with 1 death.

DR. PHILANDER A. HARRIS, of Paterson, thought there was a large percentage of practitioners who were incompetent to use the tampon without exposing the patient to the danger of sepsis. He thought the choice of operation lay between the Braxton-Hicks method and the so-called rapid delivery. The Braxton-Hicks method, by dilating a little, turning the child, and allowing the hand to enter slowly, arrested effectually the hemorrhage. It allowed Nature to do the work. It was a good method, but it required skill. While he had never employed the method, he spoke in its favor because accouchement forcé, as generally practised, was apt to do a great deal of harm. He had used accouchement forcé to the exclusion of every other method, but he pointed out its dangers and mentioned how they might be avoided by those who were skilful in its employment.

DR. GEORGE J. ENGELMANN, of Boston, believed that each case to a certain extent should determine the method to be pursued. If labor had advanced to a certain degree, with a yielding os, accouchement forcé might enable the obstetrician to deliver the child. He had been wedded to the tampon either artificially or naturally by using a part of the child by version; but Dr. Fry's success was a warning as to the safety of the method, and he referred to it particularly because Cesarean section had been recommended by good authorities for placenta previa. The conditions rarely existed, in his judgment, where Cesarean section should be resorted to for placenta previa. Moreover, the suggestion was extremely dangerous, because, as a rule, placenta previa was to be treated by the general practitioner, and either by the tampon or by the Braxton-Hicks method we had a plan which the practitioner could pursue.

DR. JOSEPH B. DE LEE, of Chicago (by invitation), raised a voice against the performance of accouchement forcé in any case of placenta previa. He believed that even in the hands of the experienced accoucheur the operation was not only attended with great danger, but it was one that should be superseded by other methods attended with less risk to the patient. The objections he raised were: first, that it was unnecessary; second, that it was distinctly dangerous because of hemorrhage; third, that it

could produce a rupture of the cervix which might extend to the lower uterine segment and even into the uterus higher up; fourth, that it did not offer a greater percentage of recoveries to the infants than did other methods of treatment which had come into vogue.

The danger of hemorrhage from accouchement forcé should not be minimized, because even in the hands of good men it had produced death and serious after-conditions, the late effect of the loss of blood. He emphasized not only the immediate effects of hemorrhage and shock, but the subsequent ailments from which these women suffered for years.

The mortality of placenta previa, so far as the mother was concerned, need not necessarily be any higher than the mortality from sepsis which was likely to occur, and the possibility of air embolism. The physician could save every single mother who came to him in good condition with placenta previa by the adoption of the later methods of treatment. Accouchement forcé ought to be abolished from the treatment of placenta previa, and he would put in its place the use of the intrauterine colpeurynter. The Braxton-Hicks method of bipolar version in the treatment of placenta previa was a distinct advance, but it produced a large infantile mortality. The mortality from the Braxton-Hicks method of bipolar version, as far as the infant was concerned, had been very high. He did not believe that he had saved more than 50 per cent of the cases. On the other hand, the mortality, so far as the mothers were concerned, where the Braxton-Hicks method was properly performed, leaving out sepsis and air embolism, would be *nil*. Following Schröder's advice of careful, slow delivery after version, it would almost guarantee the mother's life; whereas rapid delivery would tear the cervix, the woman would be exposed to the danger of immediate hemorrhage, sepsis, and possibly rupture of the uterus. If the case was in such good condition that one could justifiably make an attempt to save the child's life, he could replace the Braxton-Hicks method by the intrauterine colpeurynter.

He mentioned briefly his own results. Of twenty-five cases of placenta previa, he had lost one mother, and she died on the third day from sepsis. She had been for six weeks in the hands of midwives.

DR. FRY, in closing the discussion, said he believed that accouchement forcé in the hands of the Fellows of the Society would be all right. Before writing his paper he looked up the subject of placenta previa to see how and when it was brought before the society, and he could find but two papers, and both of these advocated accouchement forcé. If the opinion was circulated broadcast that accouchement forcé was the proper method to pursue in the treatment of placenta previa, the general practitioner would use this method and his results would be bad.

The Braxton-Hicks method, although demonstrated to be perfectly safe, with a mortality lower than any other method, had

not been adopted by the profession at large. In the fifty cases collected and mentioned in his paper, there were only two cases in which the Braxton-Hicks method of bipolar version was done, whereas there were fifteen cases of accouchement forcé.

In regard to Cesarean section, it would be very seldom that physicians would ever perform it for a condition where we had a method of delivery which was absolutely safe to the mother. He had reported one case suitable for Cesarean section. He began the dilatation of the cervix with a steel dilator, and from it he worked up with Hegar's gradual dilator until he could admit his finger to the cervix. The woman was in labor; the rigidity of the internal os was so great that it took six hours to effect the final delivery of the child. This was a case where he thought Cesarean section should have been advocated. The mother recovered; the child was sacrificed.

As to placenta previa, the mortality to the infant was so great that we might practically throw it out of consideration. Even if the children were born alive, if the cases were followed up it would be found that after the first month or two they were dead and buried. He believed obstetricians were neglecting a very valuable method of treating placenta previa, and that they were led away by the brilliancy of the immediate operation and were recommending that to the general practitioner.

DR. J. DUNCAN EMMET, of New York, read a paper entitled

MYOMECTOMY OF NINE MYOMATA DURING PREGNANCY AND DELIVERY
AT TERM.

The most important points in the technique of this operation were:

1. That the uterus was supported and held steadily by the hand of his assistant grasping it posteriorly, great care being used to avoid jerking or handling the uterus unnecessarily.
2. That in enucleating each myoma he avoided drawing the tumor up out of its bed, but, holding it *in situ*, pushed back the peritoneal and interstitial tissue which enclosed it, either with his finger-nail or the handle of the scalpel, until he had reached the bed of the tumor and freed it. This method was slow, but it reduced excitation of the uterine muscle to a minimum and allowed very slow and gradual contraction of the bed of the tumor.

Bleeding was reduced to a minimum and the lines of suture greatly shortened.

The lesson to be learned from this case was, in his opinion, the fact that hysterectomy might and should be avoided in all cases of myomata complicating pregnancy. If pregnancy should continue after so prolonged and irritating an operation as a nine-fold myomectomy, he could not believe that myomectomy might not always be practised with as equally careful technique as was exhibited in this case. If the statistics which he had collected and the history of his case should save a proportion of fetal lives, by showing that we should not hesitate to give the patient and

her child the chance which myomectomy offered, great good would have been accomplished.

DR. J. WESLEY BOVÉE, of Washington, D. C.—Myomectomy in pregnancy was indicated particularly if there was a degenerate growth or growths. It was indicated if the growth was low in the uterus and obstructed the pelvis to the extent of interfering with delivery of the child at full term. He did not think myomectomy for multiple fibromata upon the pregnant uterus was an operation to be advised. If, however, the growths were subperitoneal, with well-developed pedicles, then the operation did not interfere so much with the uterus proper, and there was less dilatation and less risk of abortion following the operation.

TETANUS FOLLOWING CELIOTOMY, WITH REPORT OF TWO CASES.

DR. HENRY C. COE, of New York, contributed a paper on this subject.

In his introductory remarks he stated that tetanus is such a rare complication of abdominal section that many operators of large experience have never had a case. Confident in the power of thorough asepsis to overcome the most virulent germs, we are apt to forget that there still remain some which resist the ordinary methods of sterilization, and against which we seem powerless to act, because as yet we do not understand their mode of development and the nidus most favorable for their growth. Statistics have shown that the disease is especially fatal after ovariectomy and hysterectomy. Tetanus is a rare cause of death after aseptic operations, as shown by reviews of various hospital records. Environment seems to make little difference. In Bellevue Hospital, where conditions are apparently most favorable to development of tetanus, this is almost unheard of, except as the result of wounds received before the patient is admitted. In the General Memorial Hospital, on the contrary, where the conditions are infinitely better, two fatal cases have occurred since the hospital was opened (1887), and *both* in the service of the writer. In both cases tetanus followed clean operations, after a normal convalescence, and under conditions which were quite inexplicable.

CASE I. *Double Salpingitis and Cystic Ovaries Removed.*—Perfectly simple operation. Convalescence afebrile, though patient was very nervous. Primary union of wound. Out of bed in sixteen days. Complained of slight sore throat and trouble in swallowing. Twenty-first day, up and about. Slight stiffness of neck. Twenty-sixth, slight spasm of muscles of jaw. Thirty-second day, diagnosis of tetanus made, and 25 cubic centimetres of serum injected under skin. Swallows with some difficulty, but no other symptoms. No rise of temperature and general condition good. Thirty-fourth day, still takes nourishment. Additional injection of serum. During next two days general convulsions. Death on thirty-sixth day.

CASE II. *Panhysterectomy for Fibroid Uterus and Diseased Ovaries and Tubes*.—Absolutely normal convalescence until ninth day, with primary union, when patient had slight stiffness of the neck. Tenth day, cannot swallow. Serum (50 cubic centimetres) injected into vein. General convulsions during night. Second intravenous injection. Death on eleventh day.

In neither case were specific germs found in blood or neighborhood of wound.

Comments on Cases.—Difficulty of diagnosis, as both patients were hysterical and had no rise of temperature or other symptoms. Treatment of no avail, though begun too late in first case.

Cases occurred eighteen months apart. No others in the hospital before or since. No cause was discovered, either in technique, condition of patients before operation (both were in good health beforehand and had been long under observation), or climatic conditions.

Questions for discussion: 1. Can we prevent the development of the disease, and how? 2. Can we avert the fatal result by prompt resort to the use of antitetanus serum or other treatment? The answer to these questions in the class of cases under consideration is thus far a negative one. It seems to be impossible to discover and act directly upon the focus of infection when it is within the abdomen.

DR. ANDREW F. CURRIER, of New York, contributed a paper entitled

INJURIES TO THE HEAD IN THE NEW-BORN.

The importance of this class of injuries is measured not merely by the immediate damage to the skull or the soft parts of the head, but by the possibility of death as a near or remote result, by the possibility of lifelong defect or deformity, and especially by such detrimental effect upon the structure of the brain that development is arrested or prevented, the individual manifesting mental incompetence in any degree between slight backwardness and hopeless idiocy.

Unfortunately, postmortem examinations in fatal cases from this cause are seldom made, hence our pathological knowledge of the subject is incomplete.

The free use of the obstetric forceps has, on the whole, produced favorable results, but it is equally true that its untimely, injudicious, or unskilful application has caused injury to many mothers and destroyed the lives of many children.

The injuries in question may be received: 1. During natural labor. 2. During artificial or assisted labor.

They may involve: 1. The parts external to the cranium. 2. The bones of the cranium. 3. The structures within the cranium.

They may result: 1. In immediate death. 2. In death after a few days or months. 3. In recovery with lesions of the skull, and possibly such injury to the brain that mental development

may be permanently retarded or wholly checked and paralyzed, rendering certain areas of the body useless or ineffective. 4. In recovery with disappearance of all evidence of the injuries received.

The cause of these injuries during natural labor is usually a disproportion between the fetal head and the maternal pelvis, or the sacro-vertebral angle may be too prominent, or the pelvis may be the seat of some variety of deformity.

Rarely the injury may be transmitted through the pelvis of the mother to the fetus during pregnancy or labor. Compression may affect a large head in a small pelvis, or a normal head may be retained too long in a normal pelvis. A skull thus compressed may resume its proper contour and have no outward evidence of injury, but long-continued compression often means imbecility or idiocy.

The effect of hemorrhage may be disastrous, the blood escaping through or into the scalp under the pericranium, or into the skull and its contents.

Injuries in artificial labor may be unavoidable with the given conditions, or they may result from carelessness or ignorance. The high application of the forceps is responsible for many of the serious and fatal accidents to the fetus. The forceps is also a frequent cause of fatal injury from compression, even when properly applied and skilfully used.

Fissures and fractures are often present without outward evidence, and may be recovered from entirely or may cause serious or fatal injury. After version or rotation of the head with the hand, serious injury may occur to the skull and brain. The injudicious use of ergot may result in fracture of the skull, the labor being precipitate or compression being excessive. These injuries involve:

1. *The parts external to the cranium.*

The simplest form of these injuries is the *caput succedaneum*, which consists in an engorgement of the tissues from interference with the circulation, followed by transudation of serum. This lesion passes away in a few days, and usually leaves no trace behind it. When the labor is severe, the blood vessels may be ruptured and the resulting tumor upon the scalp may contain blood. This may be absorbed, or it may result in suppuration and sloughing with necrosis of the bone. The tumor may continue to develop during several days, and may be on the face, scalp, or any other presenting part. The eyes, ears, nose, or lips may be bruised or crushed, with resulting deformity which may be permanent. Birth palsies from injury to the facial nerve are not infrequent, but their deviation is usually transient.

2. *The bones of the cranium.*

The bone may be indented to the extent of half an inch or more. The frontal and parietal bones are most frequently involved. Depressions which are produced slowly are not usually so serious as those which are produced quickly. The bone may be depressed alone, or fissured and fractured also. An injury to the

bones may take place even when the labor is almost painless. Fractures may be simple, compound, single, multiple, comminuted or depressed. Fracture may be caused by sudden and precipitate labor, the child being hurled into the world and dashed head first upon the ground or any other hard substance. Fissures frequently start from a projecting ridge or boss. Indentations vary in their limits and their seriousness; they are often spoon-shaped, and may be caused by a projecting outgrowth in the pelvis, or a prominent sacral promontory along which the head is scraped.

3. Injuries within the cranium.

These are the most serious of all the injuries to the head. If not immediately fatal, they may result in insanity, epilepsy, idiocy, or imbecility. Trismus and tetanus are often due to injuries received during labor. Hemorrhage within the cranium may be limited to this locality or it may extend into or through the scalp. Still-birth is very often the result of hemorrhage.

The results of these injuries may be:

1. Immediate death. This is often the result in long and severe labors, and often in those which are precipitate, the head being crushed during delivery or by contact with a hard body after birth.

2. Death after a few days or months. This occurs in the hopelessly injured, in the septic, in those whose vitality is defective, etc.

3. Recovery with permanent lesion of the skull or brain, or both, and with paralysis, convulsions, etc. All these conditions show the importance of a careful examination of the head after birth, especially if the labor has been in any way unusual.

4. Recovery with disappearance of all evidence of the injuries received.

The number of cases in this class is very large. It includes all those in which slight injury is sustained, whether bruises, effusions of serum into the scalp, or even fissures, fractures, and depressions of simple character.

In regard to treatment, it is probable that life could very often be saved in cases in which injuries have been overlooked.

In many other cases hopeless diseases might be averted by proper care and treatment at the beginning. The treatment should be instituted as soon as possible after birth, and if of a surgical character should be conducted along the same lines, and with the same attention to detail, which would be appropriate at any other period of life.

DR. BEVERLY MACMONAGLE, of San Francisco, read a paper entitled

SURGICAL TREATMENT OF TUBERCULOUS KIDNEY.

He drew the following conclusions:

1. All cases with vesical symptoms should be put through an

exhaustive examination to exclude tuberculosis in the beginning of their symptoms.

2. This examination should embrace staining and animal inoculation with urine taken from each kidney.

3. In all cases of primary tuberculosis, the other kidney being healthy, nephro-ureterectomy is indicated and will give good results.

4. In advanced cases, involving one kidney and ureter, nephro-ureterectomy is indicated and preferable to nephrotomy.

5. In cases where but one kidney is involved, early nephro-ureterectomy promises good results in a high percentage of cases.

The following officers were elected for the ensuing year: President, Dr. S. C. Gordon, Portland, Maine; First Vice-President, Dr. George M. Edebohls, New York City; Second Vice-President, Dr. Edward Reynolds, Boston, Mass.; Secretary, Dr. J. Riddle Goffe, New York City; Treasurer, Dr. J. Montgomery Baldy, Philadelphia, Pa. Atlantic City, N. J., was selected as the place for holding the next annual meeting.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of May 1, 1901.

The President, PETER HORROCKS, M.D., in the Chair.

ADJOURNED DISCUSSION ON DR. HEY GROVES' PAPER ON THE PATHOLOGY AND TREATMENT OF PUERPERAL ECLAMPSIA, WITH SPECIAL REFERENCE TO TREATMENT BY SALINE INFUSION.

The discussion was resumed by DR. T. W. EDEN, who said that one of the points upon which all observers were agreed was that albuminuria was attended by a heavy fetal mortality, from thirty to seventy-seven per cent. and that the fetus was imperfectly developed. It was important to note, in this connection, that a diseased condition of the placenta was also frequently met with in albuminuria, and it seemed probable that this condition had much to do with the fetal mortality and the feeble development. Without entering into detail, the placental changes might be said to consist of extensive infarction, which had been termed "pathological infarction" to distinguish it from the normal process in the adult placenta. Infarction in the healthy placenta had been shown to start in obliteration of the fetal arteries; in "pathological infarction" arterial obliteration attained a greater degree of severity. The primary lesion was probably identical in the two. The toxemic theory of the

causation of albuminuria offered the best explanation of the clinical phenomena of this disease, and also of the occurrence of these placental lesions. The accumulation of toxins in the maternal blood would rapidly affect the quality of the fetal blood, and the changes in the fetal arteries would then be due to the impurity of the blood flowing through them. The toxins might be formed in the maternal tissues, but there was something to be said for the alternative view that they were products of fetal tissue metabolism. If the toxemic theory of albuminuria was accepted, the renal and hepatic changes must be regarded as mere incidents of the disease and not as the cause of it. The great objection to this theory appeared to him to be that it proved too much, for it would prove that every pregnant woman must suffer from albuminuria. There must, in the first place, be a deficiency in the normal rate of elimination, allowing of the accumulation of toxins in the blood and thus starting the whole train of symptoms. Sir Andrew Clarke had described a condition of "renal inadequacy," due, not to definite changes in the kidneys, but to deficient elimination through those organs. It was possible that some such condition occurring during pregnancy was the primary fault on the part of the mother.

DR. ARTHUR GILES said that in order to form a clear judgment as to the value of saline transfusion or any other therapeutic measure in the treatment of eclampsia, it was necessary to make some further differentiation than was involved in speaking simply of eclampsia. It was necessary, in the first place, to distinguish between renal disease accidentally complicating pregnancy and cases of albuminuria with toxemia due directly to the pregnancy itself. In the second place, a distinction should be made between a condition of diminished or suppressed excretion and a toxic condition of the blood independent of such diminution or suppression. Primary renal disease was generally associated with imperfect elimination, and in such cases the value of saline injections was doubtful. Here it was preferable to rely on the measures applicable to cases of uremia apart from pregnancy—viz., hot packs, diuretics, and free purgation. On the other hand, the toxics of pregnancy was not necessarily associated with faulty elimination; and in these cases the best results might be expected from the treatment advocated by Dr. Hey Groves. There was considerable difference in the prognosis also; in the case of primary renal disease the immediate prognosis was worse, and there was little prospect of cure after delivery; whilst in the toxics of pregnancy the immediate prognosis was better, recovery after delivery was generally complete, and a repetition of pregnancy was not necessarily accompanied by a return of the symptoms. When saline injection was indicated, some authors advocated that it should be combined with venesection in plethoric patients; and it appeared to him that there was a good deal to be said in favor of this plan. The injection of saline solution into the cellular tissue, under the breast

or into the abdominal wall, was often easier and quicker than venous transfusion. It had also been said that it was more efficacious, inasmuch as the fluid became mixed with the serum in the tissues before passing into the general circulation.

DR. ROBERT JARDINE (Glasgow) said he believed in the toxemic theory of eclampsia. The toxin seemed to him to be a waste product of tissue metabolism. Dr. Eden had referred to the belief that on the death of the fetus albumin lessened or disappeared from the urine. He (Dr. Jardine) had seen three severe cases of eclampsia with macerated fetuses in which the albumin had been abundant.

A very important point was how the maternal system dealt with the waste products. In the first place, elimination by the alimentary canal was below the normal. Constipation was the rule in pregnancy, and markedly so in eclampsia. He believed the toxin acted on the kidneys like turpentine and cantharidin. Albumin, and often blood, appeared, excretion was lessened, and there might be complete suppression of urine.

He had brought with him sections from four livers showing marked evidence of degenerative changes in the cells. He was convinced that the liver played an important part in the destruction of the toxin. He had published a case in which a second attack of profound coma had supervened on the fifth day, in which the urine was heavily loaded with bile pigment. The kidneys had been acting very freely or otherwise the patient would probably have died. Dr. Hey Groves believed that increased coagulability of the blood caused multiple thrombosis and thus brought about the fits.

He believed that the fits were caused by the toxin acting directly on the nerve centres. The toxin seemed to him to affect the fetus as it did the mother. He had found albumin in the urine in all cases examined. He had also found it in the urine of several infants whose mothers had had bad albuminuria without fits. Given a toxin in the system, he thought the most rational treatment was one which aimed at clearing it out through natural channels by acting on the bowels, skin, and kidneys.

Diuretics by the mouth were too slow, but by giving a solution such as he used—viz., the normal saline solution with one drachm of acetate of soda to each pint—he claimed that diuresis was quickly established. By the second day diuresis was profuse, the poison was diluted, and the whole system stimulated.

To test the results of this method of treatment he gave statistics from the Glasgow Maternity Hospital. Dr. Munro Kerr had found that during the last fifteen years 80 cases had been treated. The old methods had given a death rate of 47 per cent, while with the saline infusions there was a death rate of 24 per cent—a fall of very nearly 50 per cent. It must be borne in mind that they had to deal with very bad cases; many of them actually morbid. He, personally, had had 3 deaths in 22 cases. He had great faith in the saline infusion as a remedy.

DR. MUNRO KERR (Glasgow) said that he was much in favor of the employment of saline infusion in eclampsia. Saline infusion was undoubtedly a most powerful, though slow, diuretic. In addition to having a diuretic effect, the infusion acted as a cardiac stimulant and diluent to the poison. He quoted cases to illustrate these latter two effects of saline infusion. His position regarding saline infusion was that he considered it a most valuable adjunct to the general treatment of the disease. He did not advocate it to the exclusion of such drugs as morphia or chloral, which should be used only if there was much restlessness and the fits were not at once arrested by saline infusion.

As regards the high fetal and infantile mortality, he thought that while occasionally deaths might be caused by changes in the placenta such as Dr. Eden had described, it was most likely to be due to the same toxins. He mentioned a case that had been under his care in hospital a few days ago where the child of an eclamptic was born apparently strong, but developed on the second day convulsions followed by coma and death. The infant's urine contained a large quantity of albumin.

DR. AMAND ROUTH.—At the previous meeting one of the speakers, Dr. Herman, took exception to Dr. Groves' explanation of the way in which the convulsions were brought about, namely, that "the actual convulsions and coma resulted when these toxins caused the coagulation of the blood and the multiple capillary thrombi." He agreed with Dr. Herman that this point had not been proved. As a rule saline transfusion had not been used till the fits came on, but if it were given in the pre-eclamptic stage the effect on the urine would prove a better test of its utility. They had heard the mortality statistics at the Glasgow Maternity before and after this method of treatment, but they were not told what treatment had been in vogue previous to the introduction of the method of saline transfusion. In Dr. Jardine's and Dr. Groves' cases the saline treatment was not used alone, but was supplemented by the administration of salts, hot packs, *veratrum viride*, etc. Whatever might be the value of saline transfusion in the pre-eclamptic stage, it seemed to him that they would still have to rely on sedatives in the treatment of the actual eclamptic convulsions.

DR. M. HANDFIELD JONES thought that it was highly unscientific to talk generally of treating puerperal eclampsia by saline infusions, as if all cases of this complication were of the same nature and required the same treatment. It was quite true that the retention of toxic products in the system probably often accounted for the convulsions, but in other cases the fits seemed to be originated in the central nervous system. Undoubtedly, in certain as yet undemonstrated cases, the injection of saline fluid was useful. Numbers of cases were cured by a single blood-letting, by the evacuation of the liquor amnii, or by the use of sedatives, and in such cases the transfusion treatment was absolutely unnecessary.

DR. W. S. A. GRIFFITH quoted statistics from Queen Charlotte's Hospital to illustrate his remarks at the previous meeting. From January, 1899, to March, 1901, 2,630 women had been delivered, and of these 135 had albuminuria (5 per cent), being 7.2 per cent in primiparæ and 1.6 per cent. in multiparæ. Of these albuminuric cases 6 had eclampsia and all recovered.

DR. E. RUMLEY DAWSON disapproved of Dr. Japp Sinclair's statement that no general practitioner should miss the fact that a patient is suffering from uremia. He (Dr. Dawson) thought repeated urine testings were impracticable in a busy general practice. He had no personal experience with the treatment by saline infusion, but thought that the difficulty and occasional danger of the operation should not prevent its being used by general practitioners.

THE PRESIDENT said he was not convinced by the cases published that in saline transfusion we had a remedy for puerperal eclampsia. As a fact, there were already many remedies or modes of treatment, and whenever a disease or illness had several methods of treatment it generally meant that there was no known cure. Although pilocarpine was a dangerous drug in unsuitable cases, he believed that, judiciously used, it was a valuable mode of treatment in puerperal eclampsia.

With regard to the injection of saline fluid, he thought it was perhaps better not to inject it into the veins, but into the cellular tissue and rectum; because it must be remembered that in these cases there had been no loss of blood, and hence there was no underfilling of the vascular system as in cases of profound hemorrhage, and, moreover, the blood pressure was generally raised owing to the convulsions, and therefore it might not be without danger to add rapidly several pints of fluid. He did not for a moment believe that the blood would absorb the saline fluid from the cellular tissues or from the rectum to any dangerous extent, because it was a physical process (osmosis, etc.), and the blood would cease to absorb any more when the vessels were full. Nevertheless he could not help thinking that if there was any truth in the theory that puerperal eclampsia was due to a toxin circulating in the blood, and any truth in the theory that diluting the blood would cure or mitigate the fits, then blood should be drawn from one median basilic vein and saline fluid injected into the opposite one. Or, at all events, blood should be withdrawn from a vein and saline fluid injected into the cellular tissues and the rectum, whence it would be rapidly absorbed and so restore the blood pressure and at the same time dilute the blood.

He considered that sufficient evidence had been brought forward by Drs. Groves, Jardine, Munro Kerr, and others to warrant further trial of this method of treatment in puerperal eclampsia.

In his reply DR. GROVES dealt with the statistics of mortality of Veit's treatment of eclampsia by morphia and Charpentier's

by chloral, but said that other observers had not met with equal success. He thought the minute hemorrhages found in the brain, kidneys, liver, and other organs, surrounded by areas of necrosis, were due to the morbid state of the blood and blood vessels and not to the mechanical result of the fits. He advocated repeated saline transfusion when there was profound coma, cyanosis, and anuria, with chloroform during delivery.

The following specimens were shown: DR. JARDINE: Microscopical sections from a liver in a case of fetal eclampsia. DR. MUNRO KERR: Dermoid cyst of ovary successfully removed during labor. DR. C. E. JENNINGS: Transfusion apparatus. LIEUT.-COL. STURMER, I. M. S.: Perivaginal tumors containing "hydatidiform" cysts (referred to subcommittee).

Meeting of June 5, 1901.

The President, PETER HORROCKS, M.D., in the Chair.

DR. ARCHIBALD DONALD read a paper on

FIBROID TUMORS COMPLICATING PREGNANCY AND LABOR.

He said he had come to the conclusion that in the majority of instances neither pregnancy nor labor is seriously influenced by these tumors, but that in a small proportion of cases the danger to mother and child is greatly increased.

The risks during *pregnancy* may be summed up as follows: (1) Rapid increase in size of the tumor, causing severe pain and great distress; (2) incarceration of the tumor in the pelvis; (3) serious pressure on the bladder; (4) degeneration of the tumor through diminished nutrition; (5) excessive rotation of the pregnant uterus; and (6) abortion or premature labor.

Abortion or *labor* may be complicated (1) by obstruction of the natural passages; (2) by malpresentations; (3) by retention of the placenta or membranes; (4) by extrusion of the tumor during labor.

During the *puerperium* the presence of a uterine fibroid renders septic infection more likely.

The treatment of this complication of pregnancy and labor was then discussed. Two main groups of cases are recognized: (1) those in which pregnancy is allowed to take its course until full term or until the child is viable; (2) those in which it is necessary to interfere in the earlier months.

In the great majority of cases it is better to leave matters alone until term. If the tumor is located in the pelvis the treatment in each case must be settled by a careful examination—if necessary under an anesthetic. Cesarean section is preferable to delivery by the natural passages if the latter involves the employment of much force.

He gave notes of a case in which there was rapid enlargement of the fibroid during the first three months of pregnancy, but in which the condition of the patient was fairly good, and in

which the pregnancy was allowed to go on until nearly term. The occurrence of albuminuria and rapid deterioration in the patient's health then rendered interference necessary. It was ascertained on examination under an anesthetic that delivery by the natural passages would be attended with great difficulty. Cesarean section and subsequent hysterectomy were successfully performed.

He then discussed the treatment in the earlier months, when interference is necessary, under the heads of (1) induction of abortion, (2) hysterectomy, and (3) myomectomy.

In his opinion the induction of abortion ought to be abandoned. Notes were given of a case in which the patient was admitted to hospital on account of a rapidly growing fibroid. Spontaneous abortion occurred, but the placenta was retained and had to be removed artificially. In spite of the most careful aseptic precautions, septic infection occurred and a serious illness resulted. Some months later the tumor was removed by abdominal myomectomy.

He described three cases of abdominal hysterectomy for rapidly growing fibroids in the early months of pregnancy, but he advocated a preliminary myomectomy whenever it is possible, as by this measure the life of the child may be saved. In all cases of subperitoneal pedunculated fibroids the tumor ought to be removed during pregnancy. When the tumor is more sessile, and operation is required in the earlier months, it is best to enucleate the tumor and stitch up the gap in the uterine wall. If, however, the raw surface is too extensive, or if it is close to the uterine cavity, or if hemorrhage is difficult to control, the operation ought to be terminated by hysterectomy.

MR. ALBAN DORAN spoke of his own case of pregnant fibroid uterus successfully removed at the fifth month, reported in the *Lancet* of March 2, and he exhibited the specimen. There was a large fibroid outgrowth on the fundus, which, as is usually the case, could in itself have hardly prejudiced either pregnancy or labor. There was a second large outgrowth springing from the posterior aspect of the lower segment and incarcerated in the pelvis, which pressed the cervix against the pubes. Emptying the uterus through the vagina was impossible, and on account of the severity of the pressure symptoms it was not advisable to wait till term and then perform Cesarean section. Myomectomy was impracticable on account of the position of the fibroid, and in this case an attempt to push the fibroid out of the pelvis would have involved great risk of rupture of the soft uterus, which would have been squeezed between the two hard tumors. There was no course left but retroperitoneal hysterectomy, which proved very satisfactory.

DR. WILLIAM DUNCAN could not agree with the author that pregnancy and labor are only seriously influenced in a small proportion of cases by the presence of fibroids. He mentioned cases in which he had met with serious obstruction in the pelvis

even after abortion had been induced, also rupture of the uterus during pregnancy with fatal result; and he had a case some years back under his care in the Middlesex Hospital where the patient was waiting until full term had arrived, in order that he might perform Cesarean section, but who died of cerebral apoplexy whilst resting quietly in bed.

With regard to subperitoneal fibroids, he could not agree with Dr. Donald that "in all cases they should be removed during pregnancy," for, unless a fibroid of this kind were impacted in the pelvis, it should be left severely alone and the pregnancy and labor would proceed naturally. With regard to interstitial or submucous fibroids, the nearer the cervix they were situated the greater the danger; and in these cases he thought the best interests of the mother were provided for by emptying the uterus, if the pregnancy were in the early months. If, however, the tumor obstructed delivery, it was better to perform Cesarean section and then remove the uterus and the fibroid than to attempt delivery by craniotomy.

DR. G. E. HERMAN said that many valuable papers had been written on pregnancy with fibroids. Dr. Donald's paper was the first in which pregnancy with fibroids had been adequately treated in the light of modern surgery. In all his main points he agreed with Dr. Donald. He was not convinced of the effect of fibroids in causing abortion. Dr. Donald had quoted figures supposed to show that abortion was frequent: those of Kelly, who put the frequency at 25 per cent. and of Lefour, which came to about 20 per cent. But 20 per cent was about the normal frequency of abortions to labors at term. That fibroids often caused premature labor he thought was beyond doubt. The danger of pregnancy with fibroids depended more upon the situation of the growth than upon anything else. Fibroids situated above the lower segment of the uterus, unless very large, commonly caused no trouble in pregnancy or labor. He agreed with the preceding speaker that it was not necessary to remove every small subperitoneal fibroid that coexisted with pregnancy. If a fibroid or fibroids were situated in the lower segment of the uterus, delivery might be obstructed by them. In such cases he (Dr. Herman) thought the essential condition for the best treatment was to decide before labor, or quite early in labor, whether or not the tumor would obstruct delivery; and if it was judged that delivery would be obstructed, to perform Cesarean section or myomectomy, whichever seemed best, before the patient had been exhausted by prolonged labor. In deciding between myomectomy and hysterectomy he thought that the age of the patient was a factor to be taken into account. In a patient so old that further pregnancy was not likely, hysterectomy was to be preferred as being safer than myomectomy.

MR. J. BLAND-SUTTON observed that next to pregnancy it seemed probable that "fibroids" was one of the common conditions to which a woman's uterus was liable, and it is equally certain that fibroids and pregnancy often coexist and the two

conditions have no baneful effect on each other. It is also equally certain that occasionally the coexistence of fibroids and pregnancy is fraught with great danger to the life of the mother, and the treatment of these cases has often been a matter of grave concern to those who undertake to superintend delivery. Mr. Bland-Sutton wished particularly to draw attention to the fact that in many instances in which hysterectomy had been performed in the early months of pregnancy for this complication, the operation had been undertaken on the ground that the fibroids had "recently been growing quickly," but when the uterus had been removed the operator found that the presumed rapid growth was due to the associated pregnancy. He was interested in the successful enucleation of fibroids from the pregnant uterus. In one case in which he had found it necessary to perform this operation at the fourth month, the uterus was quite smooth and no other tumors were seen or felt. The pregnancy went to term and a fine boy was born without difficulty, but the uterus was tuberosc with fibroids, and, to add to the disappointment, the child was found to have an imperforate pharynx. Although abdominal enucleation of fibroids could be performed with less risk than hysterectomy, it was very rarely necessary in pregnancy, and very unsatisfactory, as in a large proportion of cases other fibroids arose in the uterus. Thirty years ago Sir Spencer Wells startled the obstetrical world by urging that unilateral ovariectomy was practicable and justifiable during pregnancy. About fifteen years later it was proved that double ovariectomy could be successfully performed during pregnancy and without disturbing the fetus, and in 1901 the Society receives with equanimity the fact that a fibroid may be enucleated from the wall of a gravid uterus without interfering with the pregnancy, the mother going safely through her confinement and gaining a vigorous child. Surely this may be regarded as a triumph of modern surgery!

DR. A. H. N. LEWERS said that when a fibroid tumor complicated pregnancy much depended on the exact situation of the tumor. In cases like that exemplified by Mr. Doran's specimen, where the tumor was situated low down, it offered an insuperable obstacle to the passage of the child and necessitated Cesarean section. In cases, also, where a patient already the subject of a large uterine fibroid became pregnant, even though the fibroid was situated in the upper part of the uterus, abdominal hysterectomy might be needed in the early months on account of the distress caused by the extra enlargement of the uterus. Such cases were, however, in his experience quite exceptional. He had seen a considerable number of cases of pregnancy complicated by fibroid tumors in which the patients passed through pregnancy, labor, and the puerperium quite normally. In Dr. Lewers' opinion it would be a pity if the impression were to become general that when fibroid tumors complicated pregnancy abdominal hysterectomy or myomectomy was generally required.

DR. HERBERT SPENCER agreed with most of the recommenda-

tions in the paper; he was especially glad to hear that the author condemned the induction of abortion. In cases where fibroids occupied the cervix or lower segment of the uterus, that operation was very dangerous owing to the rigidity of the tissues and the difficulty or impossibility of completely emptying the uterus. Though he had never performed the operation himself, he had known it to terminate fatally in skilful hands when every precaution was adopted, and he thought the operation should not be performed. He agreed with Dr. Lewers in advocating a more conservative treatment of many of these cases. Fibroids implicating pregnancy were fairly common. At University College Hospital, where about 2,500 cases of labor were attended annually, he had seen a considerable number of cases of pregnancy and labor complicated with fibroid tumors, but he had never met with a death from the complication, and had only once had to perform Cesarean section and remove the uterus. He had seen cases in which it was expected that fibroids in the lower segment would interfere with the passage of the child, but when labor set in the tumors were drawn up out of the way and delivery was safely effected. Dr. Spencer was of opinion that hysterectomy in the early months of pregnancy was far too frequently performed. He would treat the severe pain often present by the usual medicinal remedies, and would permit a living child to be born either naturally or by operation. He thought the statement that all subperitoneal pedunculated fibroids ought to be removed during pregnancy was too absolute. And he wished (though this remark did not apply to the author's paper) to enter an emphatic protest against the removal on account of pain of small, sessile corporeal fibroids by enucleation through the abdomen during pregnancy—an operation which was by no means free from immediate and remote risks, which sometimes necessitated hysterectomy on account of hemorrhage, and which probably left in the uterus growths which might require a subsequent radical operation.

MR. A. C. BUTLER-SMYTHE quite agreed with the remarks made by Dr. Herbert Spencer and was glad to join in the protest against indiscriminate operating. Personally he was much obliged to Dr. Donald for teaching him that large myomata could be safely removed from the pregnant uterus, but he could state that in his experience there were instances where living children were delivered without resorting to abdominal operations. He recognized the necessity for operating in the specimens shown, but thought there were many cases in which the fibroid might well be let alone.

THE PRESIDENT quite disagreed with those who alleged that fibroid tumors of the uterus did not cause miscarriage. It was true that a woman might have fibroids and not miscarry. He had known a patient to be delivered of a full-term child whilst suffering from a subperitoneal fibroid as big as the pregnant uterus at full term. It was in the subperitoneal variety that

miscarriages were not the rule. Small fibroids might exist without causing a miscarriage, but his own experience proved that when there was a fibroid tumor of the size of a cocoanut in the wall of the uterus it almost invariably caused miscarriage. Many such patients came with a history of repeated miscarriage, occurring generally at about the same period of gestation, namely, the third or fourth month, as if at that time the further growth of the ovum was interfered with by the tumor, and hence the expulsion of the contents of the uterus. Whilst it was true that with modern aseptic methods the mortality in hysterectomy had been greatly reduced, it was equally true that the mortality in induction of miscarriage had also been greatly reduced. Nevertheless aseptic methods had not eliminated one danger in the induction of miscarriage for fibroids, and that was hemorrhage. This danger was considerable, because even after the escape of the liquor amnii it was often impossible, owing to the increased length and tortuosity of the canal, to reach with the finger so as to peel off the whole of the placenta. Very probably in every one of the cases described by Dr. Donald the operations were necessary because the tumors were large and caused great obstruction. But he could not agree with the deduction that in early pregnancy with fibroids abdominal section should be performed in all cases. On the contrary, many cases, perhaps the majority, might well be let alone with a reasonable hope that all would go well. As in other diseases, each case must be judged on its own merits.

DR. DONALD, in reply, said that many of the criticisms which had been made were due to a misunderstanding. Many of the speakers had objected to his advocacy of the removal of pedunculated subserous fibroids during pregnancy. The kind of tumor which he had in mind in giving this advice was a hard fibroid of fair size and with a pedicle sufficiently long and narrow to allow of considerable range of movement. The risk of removing such a tumor during pregnancy was no greater than that of ovariectomy. On the other hand, there was great risk, during pregnancy and labor and the subsequent involution of the uterus, of these tumors being rotated so that their nutrition was interfered with. The only kind of case in which the induction of abortion could be entertained was one in which the delivery of a mature fetus was manifestly impossible owing to the blocking of the pelvis by one or more fibroid tumors. In such a case the canal was generally elongated and tortuous, and there was as much risk in this method of treatment as in an abdominal operation. Moreover, in any case where such conditions existed, even if the uterine cavity were safely emptied, a subsequent operation for the removal of the tumor would almost certainly be required.

The following specimens were exhibited: DR. A. DONALD (for Dr. W. E. Fothergill): A decidual uterine cast of seven weeks' growth expelled with an ovum of about five days' growth, with

microscopical section. This specimen was referred to a subcommittee for report. DR. H. R. ANDREWS: Two cases of fetal ascites and edema. MR. STANLEY BOYD (introduced by Dr. Amand Routh): An unusual case of suppurating fibromyoma of the uterus removed by hysterectomy. MR. ALBAN DORAN: A pregnant fibroid uterus removed in the fifth month.

REVIEWS.

HUMAN PLACENTATION. An Account of the Changes of the Uterine Mucosa and in the Attached Fetal Structures during Pregnancy. By J. CLARENCE WEBSTER, B.A., M.D. (Edin.), F.R.C.P.E., F.R.S.E., Professor of Obstetrics and Gynecology in Rush Medical College, etc. With 233 illustrations. Chicago: W. T. Keener, 1901.

A fuller realization of the fundamental importance of embryology has greatly stimulated research in this direction within recent years. Of the many problems offered for study, that regarding placentation has always attracted some attention; and the subject has recently been brought more prominently in the foreground chiefly through the labors of Hubrecht, Minot, Mall, and Webster. The scattered nature of this literature has, however, made it very difficult to follow the line of advance; therefore many have looked forward to just such a book as Dr. Webster has presented—a monograph in which the subject is treated in the manner of the connoisseur, teacher, and investigator. The author's well-known studies, which gained for him the First Research Prize of the Royal College of Physicians, Edinburgh, give his criticisms upon a difficult and complex subject dignity and authority.

Beginning with the structure of the mucous membrane of the corpus uteri in the adult nullipara, the author successively takes up the decidua vera, decidua reflexa, decidua serotina, early relations between the ovum and decidua, the chorion, the shed placenta, and phylogeny of the placenta.

The first chapter, on the normal uterine mucosa, is a good summary of our knowledge of its anatomy, but contains nothing especially noteworthy. The view of Minot upon the capillary network of the glands is not accepted by the author. As to the lymphatic distribution, he is in complete agreement with the teaching of Leopold. In the discussion of the decidua it is gratifying to observe that some of the fallacies of Kossmann and Mertens receive adequate correction. The section dealing with the early relations between the ovum and decidua is suggestive and to the point. As to the origin of the chorionic epithelium, Webster believes, as do Kostschenko and Minot, that it is double, both layers being epiblast, the outer layer being syneutial in nature. This is the view receiving most favorable attention,

although still regarded as debatable by some investigators. The last chapter, on the phylogeny of the placenta, is highly interesting and deserves serious attention by those to whom biological relationships are interesting and intelligible. It is suggestive, but almost too short and limited in point of view.

On the whole, the book constitutes an excellent and original résumé, abundantly illustrated, of one of the most absorbing themes related to human embryology. Although some questions are by no means so definitely settled as the author leads one to infer, still his statements have been found very reliable. The mechanical details of the book are well in keeping with the high order of contents.

REFERENCE HANDBOOK OF THE MEDICAL SCIENCES. By ALBERT H. BUCK. Vol. II. With chromo-lithographs and 765 half-tone and wood engravings. New York: William Wood & Company, 1901.

The amount of labor which Dr. Buck and his assistants have expended upon this magnificent volume must have been very great, and as the result of their toil they have put before the medical world another volume in every way as perfect as vol. i., which was published a few weeks ago. In reviewing this volume, which covers the alphabet from Bla to Chl, our attention is attracted by two series of articles—those on the blood and those on the brain.

Of the articles which come under the word blood, perhaps the most useful to the average practitioner is that by Dr. C. N. B. Lamar. This article explains the latest and simplest apparatus and technique employed in the clinical examination of the blood, and the information received therefrom. The article is well written, the illustrations are good and help greatly to elucidate the text, and, above all, it will freshen the mind of the practitioner who does not have the opportunity to make many blood examinations.

The portion of this volume devoted to the brain is in itself enough for a separate work, covering as it does over three hundred and twenty pages. The articles under this head cover its growth, histology, functions, blood vessels, surgery, methods of removal, pathology, and diseases. Burt G. Wilder in a most admirable article considers the organ mainly from the standpoint of normal morphology, with occasional elucidations from embryology, comparative anatomy, and teratology. This treatise compares favorably with the leading articles on this subject. Another section on the brain which demands special attention is that which treats of the diagnosis of local lesions, by Dr. M. Allen Starr, who is the authority on this subject. He has illustrated his work by original diagrams and some few from other authors. It is an article which is of the greatest value to the specialist and to the general practitioner.

Taking the volume as a whole, it is an admirable work, well written and illustrated, and covers the alphabet from B to C

in a very complete manner. We can commend it very heartily, not only to students but to every physician, as a most comprehensive work of reference, written by men who are eminent in their special lines.

ATLAS AND EPITOME OF OBSTETRIC DIAGNOSIS AND TREATMENT.

By DR. O. SHAEFFER, of Heidelberg. From the second revised German edition. Edited by J. CLIFTON EDGAR, M.D., Professor of Obstetrics and Clinical Midwifery, Cornell University Medical School. With 122 colored figures on 56 plates, and 38 other illustrations. Pp. 317. Philadelphia and London: W. B. Saunders & Co., 1901.

ATLAS AND EPITOME OF LABOR AND OPERATIVE OBSTETRICS.

By DR. O. SHAEFFER, of Heidelberg. From the fifth revised German edition. Edited by J. CLIFTON EDGAR, M.D., Professor of Obstetrics and Clinical Midwifery, Cornell University Medical School. With 14 lithographic plates, in colors, and 139 other illustrations. Pp. 111. Philadelphia and London: W. B. Saunders & Co., 1901.

This work—for the two volumes practically constitute a single text book of obstetrics—has entirely outgrown the modest size of the earlier edition. The declared purpose of the writer was to elucidate pictorially the subject of midwifery, but the plates and illustrations are accompanied by a relatively elaborate synopsis of obstetrics. Much system and extremely detailed subdivision are characteristics of the text. In the second volume a number of the illustrations are wisely placed together at the end. The others, however, and those in the larger volume, are scattered through the text apparently without reference to the adjacent subject matter. The inevitable result is the inconvenience of frequent interruptions of the reading matter by cuts entirely foreign to the subject under discussion and greater difficulty in finding illustrations mentioned than if they were collected at the end of the work. Some errors of the early edition have been allowed to remain—for example, Fig. 45, in the first volume, illustrating pelvimetry. In this the posterior branch of the instrument, in measuring the external conjugate, is placed about six inches above the proper position, the dotted outline of the iliac crest invades the abdomen, and the coccyx rests where the sacrum is usually found. Many of the cuts are, however, of value.

LEHRBUCH FÜR WOCHENBETTPFLEGERINNEN.

VON DR. PAUL RISSMANN, Direktor der Provinzial-Hebammenlehr- und Entbindungsanstalt in Osnabrück. Mit 9 Abbildungen. S. 68. Berlin: S. Karger, 1901.

This little work is a handbook for the instruction of nurses in regard to the care of the healthy parturient woman and her healthy child for a period of six weeks after delivery. It is naturally of an extremely elementary nature and merely touches upon abnormal conditions sufficiently to cause the reader to notice them when they occur.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Eclampsia.—According to the previously expressed views of W. Stroganoff,¹ eclampsia is a disease due to infection with an unknown organism of slight virulence. It is transmissible to the fetus, maintains its virulence in hospitals for about three weeks, and has an incubation period of five to twenty hours. It occurs most frequently in places with dense population and overcrowded hospitals. Strict isolation of all cases and disinfection of attendants will diminish the number of cases attacked. In the present paper Stroganoff attempts to confirm his opinions. He dwells particularly upon the influence of overcrowding, saying that eclampsia rarely occurs in private dwellings, and in hospitals more frequently in those of large size.

The statistics of 143 cases of eclampsia which formed 2.07 per cent of all cases in Zweifel's clinic from 1895 to 1900 are given by Adolf Glockner.² A recurrence in a subsequent pregnancy was noted in only two instances. In attacks beginning before labor the treatment consisted in early delivery under anesthesia. When necessary, the cervix was dilated gradually by bags, rapidly by incisions, or by a combination of these procedures. After birth, frequent lavage with administration of solutions of vegetable acids, usually tartaric, hydrotherapy, morphine, and occasionally phlebotomy and saline infusion. Omitting one case dead on admission and four moribund, the maternal mortality under this active treatment was 15.49 per cent. This is a decided improvement upon the statistics of the clinic when milder measures were employed. The fetal mortality was 43.59 per cent, of which nearly one-half were premature.

W. B. Hallowes³ reports four cases of puerperal eclampsia successfully treated by rectal injections of chloral hydrate. All the cases were given sixty grains of chloral in an ounce of water per rectum as often as the convulsions came on.

The subject of eclampsia was discussed by the Ninth Congress of the German Gynecological Society.²²⁻²³ Wyder summarizes its treatment as: (1) immediate and rapid delivery without too great regard for the life of the fetus; (2) narcosis during all manipulations; (3) great care in asepsis and antisepsis, on account of the marked tendency to sepsis; (4) careful individual selection of such drugs as chloroform, chloral, morphine, and veratrum viride, which do not remove the toxins, but merely limit their action and increase the burden upon the heart and kidneys; (5) rapid regulation of the excretory function of the

kidneys, skin, and intestines; (6) removal and dilution of the toxin-containing blood, in some cases by phlebotomy and saline infusions; (7) oxygen inhalations to increase the oxidation of the blood; (8) rapid stimulation by ether, camphor, caffeine, etc., for threatened cardiac failure.

W. Nagel reports that 289 cases at autopsy showed in every instance renal lesions, while hepatic changes were observed in only half of them. Cesarean section should be reserved for cases in which, while the mother's condition is serious and the child alive, no other operation seems feasible. Dilatation by Champetier de Ribes bags is free from danger to the mother.

Albert considers eclampsia an intoxication resulting from absorption of the products of bacteria in the decidua. It depends upon a latent bacterial endometritis of pregnancy. Bacteriological examinations should be confined to placenta secured by Cesarean section. With six of these he obtained a positive result in two cases, a doubtful result in one. The bacteria differed. There is obviously no one which causes eclampsia.

Schatz holds that phlebotomy in eclampsia acts by diminishing the blood pressure, not by removing toxins.

Olshausen favors saline infusion and phlebotomy, which he believes are effective by diminishing the toxicity of the blood.

Döderlein attributes a marked influence upon the causation of eclampsia to geographical and social situation. The people of Würtemberg seem nearly immune, one case in 3,560 births; while in England the ratio is 1 to 750, in Russia 1 to 156.

P. Müller does not interrupt pregnancy for albuminuria alone. Cesarean section he reserves for cases in which the mother's life seems practically lost. He prefers incisions of the cervix to dilatation by bags.

L. Meyer, on the other hand, strongly favors the last method. The importance of prophylaxis is emphasized by many speakers.

Sterilization of the Hands and Puerperal Morbidity.—Statistics presented by Sticher.²⁴ and including 1,200 cases examined and delivered with sterilized rubber gloves and the same number without gloves, show a practically negligible difference in puerperal morbidity in favor of those handled with gloves. Having, in this group of cases, eliminated as far as possible infection by the examining hand, Sticher concludes that the genital canal is frequently the source of infection. For this reason he advocates a combination of asepsis of the hands and antiseptics of the genitals.

Puerperal Infection.—Winternitz²⁵ has examined the uterine discharge in 141 cases of fever in the puerperium, and in two-thirds of these found it to be the sign of infection. In no case in which the course of the fever showed it to be due to infection of the uterus had the early bacteriological examination been negative. In view of this constancy, Winternitz advocates the employment of this method of diagnosis and active douching of the uterine cavity with antiseptic solutions.

*P. Budin*²⁵ insists upon the importance of the permeability of the cervical canal in the diagnosis of puerperal infection. Whereas that canal normally closes rapidly after delivery, in cases of uterine infection the finger can readily be passed into its cavity. In the line of treatment he advocates digital curettage followed by swabbing the uterine cavity. His paper includes a number of illustrative cases showing favorable results.

Abdominal Pregnancy.—A. C. Behle⁴ reports an operation for the removal of an abdominal pregnancy one year and one month from impregnation; a six and a half pound male child was removed. The sac was very firmly attached and contained about a pint of amniotic fluid. The mother made an uneventful recovery.

Placenta Previa.—H. D. Fry⁵ reports fourteen cases of placenta previa. Of these nine were treated by bipolar version and slow extraction; membranes ruptured and delivery left to Nature in one case; tampon and natural delivery in one case; forceps extraction four times, including one application to the after-coming head following bipolar version. All the mothers recovered and five of the fifteen infants were born alive. Of the infants lost, two (twins) were not viable; one infant was at the seventh month, and four were dead when they came under observation. The death of three infants occurred during the delivery.

Adherent Placenta.—The case described by K. Hense⁶ was that of a woman whose labor was normal until after delivery of the child. Repeated attempts to express the placenta failed, though the uterus contracted firmly. Death occurred within nine hours after the birth. Manual extraction of the placenta had been necessary in two of her seven previous labors. Autopsy showed valvular disease, severe anemia, beginning peritonitis, and fluid in the serous cavities. The decidua serotina was very thin and in places entirely absent. A number of other cases are cited as showing that where the placenta is adherent the same difficulty is often found in other labors. Hense explains the trouble as being due to the direct union of the villi with the muscular layer, a union much firmer than that which occurs with the decidua serotina, and the resulting incapacity of this internal portion of the uterine muscle to contract. The primary cause of this condition he judges to be primitive deficient development of the uterine mucosa, and hence of the decidua which arises from it.

Placental Hemorrhage from Utero-abdominal Fistula.—G. Wiener's⁷ patient was a dwarf with generally contracted pelvis. A first Cesarean section had resulted well; a second had been followed by abscess of the abdominal wall terminating in a utero-abdominal fistula. Toward the end of another pregnancy there was a sudden onset of severe hemorrhage from the fistulous opening. The patient became pulseless at the wrist and unconscious. The bleeding was arrested by pressure and a Porro operation per-

formed. The child had recently died. The placenta was situated on the anterior uterine wall, over the fistula, which could not be found to communicate directly with the uterine cavity.

Laceration of Vagina during Labor.—M. Kaufmann⁷ publishes two cases of rupture of the vagina during delivery. For such cases he advises laparotomy if the child is partly or entirely in the abdominal cavity, if the bladder is injured, or if there is severe hemorrhage. In other cases the tear should be sutured through the vagina. If this is not successful, or there is supposed to be infection, tamponade should be substituted for the suture.

Embedding of the Ovum in the Tube.—Heinrich Füh² regards the phenomena attending a tubal pregnancy as signs of an attempted adaptation of the ovum to its unnatural environment. A large maternal blood supply being necessary for its development, and the tubal mucosa failing to furnish it, the ovum burrows into the muscularis to reach the blood vessels situated there, and from this thinning of the wall of the tube rupture results.

Ectopic Gestation.—L. Seeligmann⁸ believes traumatism to be an important cause of ectopic pregnancy. In five cases which he mentions having seen there was a history of a fall or blow upon the pelvis.

Vaginofixation and Pregnancy.—One explanation of dystocia after vaginofixation is given by the condition found by F. Berndt⁶ following this operation. Seen forty-eight hours after pains began, the closed cervix was found high up, its long axis directed forward and slightly downward. The vagina was filled by the distended lower segment of the uterus behind the cervix. Cesarean section was followed by recovery. The vaginofixation had resulted in a firm cicatrix from the cervix anteriorly to the lower part of the body of the uterus, and this, being inextensible, had caused the pains to dilate the lower uterine segment posteriorly, as they could not act in the direction of the cervical canal.

Pregnancy and Fibroids.—In connection with a case in which he holds that Schwartz was not justified in performing hysterectomy at four and a half months, as the fibroids did not cause severe symptoms, Varnier⁹ reports three cases of large fibroids in which there were no symptoms during pregnancy and operation was deferred to term. He holds that early interference with pregnancy is justifiable only by the occurrence of symptoms showing immediate danger to the life of the mother.

Differential Diagnosis of Influenza and Puerperal Infection.—M. Stolz¹⁰ bases the differential diagnosis chiefly upon the frequency of relapse in influenza, and upon the relative slowness of the pulse except with serious pulmonary complications, it usually running between 100 and 120.

Latent Infectious Endometritis in Pregnancy.—The relation of pre-existing endometritis of bacterial origin to puerperal fever whose cause is not discoverable has been studied by W. Albert.¹¹ He states that every vagina contains bacteria, normally only

Döderlein's bacillus, the presence of any other being pathological. Infection of cervix and uterus from the vagina may occur at any time, especially after the beginning of menstruation. The acute stage of such a condition may be mild and brief, and the infection become latent. A large proportion of abortions and premature labors, especially with sepsis and so-called endometritis post-abortion, many difficulties in pregnancy and affections of the puerperium, are due to a latent endometritis of bacterial origin which began before pregnancy. Albert holds that prophylaxis usually begins too late, only during labor and the puerperium. He advocates the use of closed drawers, as the long skirts now worn tend to fill the vagina with dust from the floor and street; immediate treatment of any vaginal discharge, which is often the only sign of infection of the genital tract; and careful asepsis and antisepsis during labor and the puerperium. He favors raising the trunk of the puerperal woman twenty to forty-five degrees, so as to favor drainage of the vagina by making it at least horizontal. He thinks this will also diminish the liability to retroflexion of the uterus.

Glycosuria in Mother and Fetus.—Chambrelent¹² found sugar in the urine passed by the child on the eighteenth day after birth, but none in that passed twenty-five days after. The mother had symptoms of diabetes, including glycosuria.

Induction and Rapid Termination of Labor.—G. Fieux²⁶⁻²⁷ discusses these subjects *in extenso*. To summarize his views concerning induction of labor: In cases not demanding great haste the bags of Champetier de Ribes, actively manipulated, are usually sufficient, provided recourse is had to manual dilatation if the other method is too slow or some change demands immediate evacuation of the uterus. If great haste is necessary he employs manual dilatation, begun with one hand and completed by Bonnaire's bimanual method. Cases of average urgency are well treated by dilatation with one hand, followed by active use of Champetier de Ribes bags. The way in which he employs these is by inserting and filling them, withdrawing a small portion of the contents, drawing down firmly and refilling in the new position, thus dilating the cervix by the increased wedge. This is repeated until dilatation is complete. Fieux employs forceps extraction after dilatation, as being more favorable to the child than version. If it is necessary to terminate labor rapidly and it is impossible to obtain complete dilatation, Fieux draws the head down gently with forceps and divides the cervix thus made tense by lateral incisions extending to the vaginal insertions. After rapid dilatation, and extraction of the child, the placenta should be artificially removed at once.

Puerperium after Precipitate Labors, etc.—In thirteen years 157 precipitate labors occurred in Zweifel's clinic, or 1.1 per cent of the 13,302 delivered there. None of these died, and Von Seanzoni² finds the morbidity among 97 of these whose genitals were not touched by an attendant slightly less than that of the clinic

in general. Another group of 112 women were not prepared in any way for labor and were allowed to deliver themselves without any assistance. They received no baths or douches and wore their own clothes, soiled or clean. When expulsive pains began they lay on the side until the child was born. They were dressed with sterile water and gauze held in sterile instruments, and were placed in beds with sterile clothes. Of the 112 women, 22 had perineal tears, 15 of which required sutures. The writer considers this a normal average of lacerations for deliveries in general. None of the women treated in this way died, and only 13 of the 97 had any fever. Von Scanzoni concludes that there is very little danger of antoinfection from the external genitals.

Douching during Labor and the Puerperium.—R. Bretschneider² gives the statistics of 2,280 women, 1,154 of whom received douches and 1,126 only disinfection of the external genitals. The figures given show a difference in favor of the latter class. Only one of each class died of sepsis, so the percentages are calculated upon the relation of one to the number included in each class.

Perforation with the Cranio-Cephaloclast.—R. Bretschneider² has collected the statistics of 132 cases of perforation, at the Leipziger Frauenklinik, with Zweifel's cranio-cephaloclast. A fatal result in ten cases cannot be attributed at all, he claims, to the operation. He holds that the instrument is valuable because the head can be perforated, crushed, and extracted with it, and because it can easily be applied to a movable or fixed head, whether in a vertex presentation or with an aftercoming head.

Obstetrical Statistics.—A paper by E. Schroeder⁷ on twenty years of obstetrical private practice without hospital facilities gives the statistics, in tabulated form, of 1,090 cases. It is of purely statistical value.

Inversion of the Uterus.—A. Wallgren¹¹ contributes the reports of four cases of chronic inversion of the uterus. Two were due to traction upon the cord or placenta, and two were the result of the presence of uterine fibroids. A complete spontaneous inversion of the uterus occurred in the presence of K. Schumacher.¹³ The woman was a primipara, 22 years old. No traction on the cord or external pressure was employed, the patient simply bearing down. Recovery after reposition. Nine days after labor Pinard⁹ replaced an inverted uterus, which did not protrude from the vagina, by means of Champetier de Ribes bags. This was partially effected by the bag of medium size, but the inversion recurred after its removal. The largest size was then inserted in the evening and the next day the inversion was found completely reduced.

Alain and Quillet,¹⁴ finding the cervix dilated, ruptured the membranes. Rapid expulsion of a dead fetus was soon followed by severe pains and spontaneous inversion of the uterus with profuse hemorrhage from placenta previa. Rapid manual reduction on account of the hemorrhage was succeeded by hot irri-

gations and subsequent manual extraction of the placenta. Recovery.

GYNECOLOGY AND ABDOMINAL SURGERY.

Treatment of Suppurating Hematocele.—G. E. Shoemaker¹⁷ believes that vaginal drainage is the best method of treatment in suppurating hematoceles due to extrauterine pregnancy. He reports a case treated by vaginal drainage with good results.

Intra-implantation of Ovarian Tissue.—J. P. Dudley,¹⁸ instead of severing the ovarian tissue completely from its ligamentous attachment and planting it in the centre of the fundus after the removal of the Fallopian tube, splits the horn of the uterus and implants the ovarian structure, reduced in size to suit the occasion, but still attached to its own ligament. After 48 ovarian implantations he has been able to follow, 28 have become pregnant, and of these 25 went to term.

Prevention of Surgical Peritonitis.—J. G. Clark¹⁹ believes drainage as ordinarily employed is superfluous, or even dangerous, and the rational method is to remove all possible débris and infectious matter by thorough irrigation and then leave one litre of salt solution in the abdominal cavity, and, in order to promote and hasten natural drainage, supplement this by an enema of a litre of salt solution, given while the patient is in the Trendelenburg posture. Under this plan the patient is greatly stimulated, shock is minimized or averted, the urinary excretion is greatly increased and thus toxic matters are more easily eliminated without irritation to the kidneys or bladder, peritoneal infection is quickly eliminated while yet minimum in amount, thirst is alleviated or prevented, intestinal peristalsis is promoted and consequent tympanites is of less frequent occurrence.

Post-operative General Peritonitis.—In discussing two successful cases of operation for post-operative general peritonitis, K. Hintze² urges the necessity of early operation. The prognosis is improved by this. The simplest procedure is the best, and the interference should be limited to emptying the peritoneal cavity and providing drainage. Whether the former is best accomplished by flushing or by wiping with dry compresses is still uncertain.

Chronic Endometritis.—An exhaustive description of the treatment of this disease by the general practitioner is given by C. Menge.² The paper is too comprehensive for abstraction.

Treatment of Chronic Metritis.—K. E. Laubenburg³³ favors local circulatory depletion by means of from three to six deep longitudinal incisions through each lip of the cervix. Hemorrhage is arrested, whenever desired, by tampons of iodoform gauze.

Expulsion of Uterine Fibroids through Intestine.—H. von Swiecicki² gives the histories of two cases of expulsion of uterine fibroids in this rare manner. The literature shows only three similar cases. In the first case described by the writer the tumor

was discharged into the rectum, from which it was removed after incising the sphincter; the other through the cecum. Apparently the tumors became adherent to the intestine and walled off from the general abdominal cavity; then followed infection, necrosis of the intestinal wall and its perforation by the tumor.

Treatment of Primary Cancer of the Vagina.—The treatment of this uncommon condition should be, according to Krönig,² extremely radical. The operation should include the removal of the entire vagina and uterus and of the adjacent rectum and part of the bladder.

Vaginal Hysterectomy.—Döderlein² describes the following method: The uterus is drawn forcibly downward and toward the symphysis by two forceps applied to the cervix. The posterior vaginal wall is divided transversely. Then the entire posterior uterine wall up to the fundus, and the posterior cul-de-sac of the vagina, are split by scissors, one blade of which is inserted into the uterine cavity. The sharply retroverted uterus is drawn out through the posterior vaginal incision, each half being seized by forceps, and the anterior uterine wall and anterior fornix are divided longitudinally. The sharp retroversion draws the uterus away from the bladder, to which it is attached only by loose connective tissue, thus avoiding the chance of injuring the bladder. The halves of the uterus can now be easily removed, permitting free inspection and so preventing damage to the uterus.

Hysterectomy for Uterine Cancer.—C. A. Kirkley⁵ states that the radical operation for uterine cancer may be admissible when the disease is seen in its earliest stage, when the diagnosis is most difficult and cannot be confirmed without the microscopic examination. Vaginal hysterectomy is clearly indicated only in adenocarcinoma of the body, and abdominal hysterectomy only in cases in which the disease is strictly limited to the cervix and body or to the body alone. As only temporary relief can be expected in the vast majority of cases, the operation involving the least risk, and which promises most to prolong life and relieve symptoms, should be the operation of choice. Electro-cauterization has shown better results, should have more extended trial, and, when practicable, should have precedence over all other procedures.

Radical Treatment of Carcinoma of the Uterus.—This was the chief subject for discussion by the Ninth Congress of the German Gynecological Society.²²⁻³⁰ W. A. Freund claims that in general total extirpation of the uterus with removal of the glands is indicated in every operable case. In favorable cases of carcinoma of the vaginal portion this may be accomplished by the vaginal route; if the rest of the cervix or the body is involved, abdominal hysterectomy should be performed.

Winter holds that though amputation of the vaginal portion cannot be considered a radical operation, supravaginal amputation of the cervix may suffice if the disease is strictly limited to

the vaginal portion. Other cases of beginning carcinoma without glandular enlargement or invasion of the parametrium are amenable to vaginal hysterectomy. Sacral hysterectomy and supravaginal amputation of the body are to be rejected as giving poor results. Abdominal hysterectomy without removal of glands, etc., is indicated when the uterus is too large for removal through the vagina without morcellation or when large tumors of tubes or ovaries exist. Except in early cases, the radical abdominal operation is preferable and should be employed when there is glandular enlargement, invasion of the parametrium, or any other indication for the abdominal route. If the parametrium is involved as far as to the pelvic wall, the vaginal operation gives as good results and so is preferable. Improvement in permanent results is to be sought in earlier treatment rather than in improved methods.

Küstner points out as an advantage of the abdominal over the vaginal route that all possibly diseased tissue can be more thoroughly removed, and he insists that it is quite as important to remove the intervening cellular tissue as the glands. The lymphatics from the cervix pass, in their course to the iliac glands, just above the ureters, and in some cases it becomes necessary to remove the lower portion of the ureter or the wall of the bladder itself in order to be thorough.

*Schuchardt*³¹ gives his statistics of 61 hysterectomies by the paravaginal operation. Of 58 patients, 21, or 36.3 per cent, were healed. Of 42 cases of cancer, 15, or 35.7 per cent, were without recurrence after two years; and of 25, 10, or 40 per cent, were so after at least five years.

*A. Mackenrodt*³² favors removal of glands and intervening tissue in all cases, whether the former are enlarged or not. The method which he favors consists in a long, transverse incision above the symphysis, curved slightly downward. After separating the recti from their pubic attachments, the peritoneum extending above the bladder is stripped off nearly to the umbilicus. The peritoneum is then opened transversely just above its vesical attachment, the round ligaments and ovarian arteries ligated and divided, and the peritoneal flap from the anterior abdominal wall then carried above the uterus and sutured to that of the posterior wall, thus making the uterus extraperitoneal. The peritoneum at each side of the uterus is then stripped up and all tissues out to the pelvic wall freed, including glands and connective tissue. The unopened raised peritoneum covers the spaces left and they are drained. The uterus is then separated from bladder and rectum, and the vagina clamped and divided below the clamp by thermocautery. The extraperitoneal cavity left is drained through the vagina. By this method the entire pelvic contents are removed without opening the cancerous mass.

*J. A. Amann*²³ also describes a transperitoneal operation which is preceded by disinfection of the vagina for several days.

The incision is vertical, in the median line, with transverse extensions just above the symphysis, and does not open the peritoneum. The steps are: division of the left round ligament, isolation of the ureter, ligation of the uterine artery, and separation of the bladder from uterus and vagina. The peritoneum is now opened as in Mackenrodt's operation, the infundibulopelvic ligament divided, and the peritoneum closed as in that procedure. The left parametrium is dissected out, the uterus removed through the vagina, and enlarged glands in the pelvic cavity sought for and removed. He has performed five such operations with one death.

Olshausen holds that when the carcinoma has extended from its point of origin little can be expected from removal of the glands and parametrium, as this cannot be done thoroughly. For slightly advanced carcinoma of the cervix or body the vaginal operation is indicated; for very advanced carcinoma of the cervix or a large carcinoma of the body the abdominal route should be employed, so as to permit removal of the glands, also when the uterus cannot be removed entire through the vagina.

Wertheim favors the abdominal route for the purpose of removal of the parametrium and glands, and states that involvement of the former is no contraindication to operation if the patient's condition allows it. He describes his abdominal operation, and thinks that if others have had as unfavorable permanent results with this route as with the vaginal it is because they have not employed as radical a procedure as his. The less radical the operation the better are the immediate results and the poorer the permanent. Although he acknowledges that complete extirpation of the glands is impossible. *Wertheim* cites cases in which apparently lasting recovery has followed removal of carcinomatous glands.

Latzko urges catheterization of the ureters in order to avoid injury of these structures during extirpation of the uterus.

Hofmcier contends that total hysterectomy is not always essential to a permanent success; that for carcinoma of the vaginal portion supravaginal amputation of the cervix is sufficient. In support of this he quotes *Winter's* statistics, which show a difference in permanent results of nearly three per cent in favor of this operation as opposed to total extirpation.

Jordan considers the abdominal operation permissible only when total vaginal hysterectomy cannot be performed. Radical removal of the glands is impossible.

Winter summarizes the discussion by urging instruction of physicians and midwives as the best means of securing early operations by prompt diagnosis of uterine cancer. In selected cases the incomplete operation is practically radical. None of the present methods absolutely exclude the possibility of recurrence from implantation of cancer cells. It cannot yet be decided whether the abdominal or the vaginal operation is preferable. Until this has been done *Winter* would favor the vaginal

route for cases in which the growth is confined to the uterus, the abdominal if the parametrium is involved.

Inoculation of Carcinoma.—R. Schaeffer²⁴ records what is apparently an instance of this occurrence. The patient had had both ovaries removed four and a half years before for adenocarcinoma of those organs. For one and a half years the woman had observed a gradually but constantly increasing hard lump in the abdominal scar. At operation this growth was found to be entirely extraperitoneal, in the anterior abdominal wall. No evidences of new growths were found in the peritoneum or in the region of the former operation. Microscopic examination showed the tumor in the scar to be an adenocarcinoma, apparently the result of inoculation of the abdominal wound with a fragment of the ovarian tumor during the first operation.

Cancer Distribution and Statistics in Buffalo.—J. P. Lyon¹⁹ states that the house distribution of cancer shows an area of marked concentration in the German wards. Cancer is more frequent among the foreign-born, and particularly the Germans, than the native-born. The cancer rate of foreigners in general in Buffalo is 4.59 times the rate for the native-born. Cancer of the uterus and breast in Germans is hardly more than half as frequent as in the native-born; on the other hand, cancer of the stomach is ten times as frequent.

Malformation of the Vagina.—M. J. Konikow²⁰ reports two cases with deformities, one with a transverse septum extending across the vagina about two and a half inches above the vulva. The other case had a sac lying on the right side of the vagina, and had an opening between the vaginal wall and the labium minus.

Pathological Significance of Uterine Retrodeviations.—We are indebted to G. Heinrichs²⁹ for a review of the Scandinavian literature upon this subject, many of the papers being hitherto inaccessible on account of the languages employed. They show that the gynecologists of the northern European countries attach no special pathological significance to uncomplicated retrodeviations of the uterus. Heinrichs attributes the symptoms often ascribed to the uterine position to complications, and does not believe that these complications are the result of the position. The pelvic circulatory stasis invoked by many to account for symptoms associated with retrodeviations can result from only an acute retroflexion which is rare. The retrodeviation is not the cause of the complicating endometritis and metritis, which may result from infection without regard to the position of the uterus. Endometritis is not more common in cases of retrodeviation than in anterior positions, and frequently the uterus is markedly retroverted or retroflexed without an endometritis. Pains in the back occur with almost any uterine affection independently of the position of that organ, and from many other causes, such as constipation, enteroptosis, disease of the vertebral column or cord, hysteria, neurasthenia, or muscle

strain. It is difficult to understand how a small object like a retroverted uterus can cause sufficient pressure upon the rectum to give the degree of constipation which is supposed to result from this cause. Urinary symptoms referred to retrodeviations occur quite as frequently in its absence, due to inflammation of the urinary tract, urethral prolapse, cystocele, hysteria, etc. There is no relation between the degree of deviation of the uterus and the severity of vesical and rectal symptoms. It seems anatomically impossible that a simply retroflexed uterus can cause by its pressure neuralgia and paralysis of the lower extremities, a feeling of pressure and weight in the pelvic cavity, and pain at the anus from compression of the hemorrhoidal plexus. These are purely hysterical symptoms when associated with retrodeviation of the uterus. Heinricius advances as arguments for the lack of pathological significance of the latter condition: the frequent existence of marked retrodeviation without symptoms; the complete relief of symptoms by treatment of complications without altering the position of the uterus; and the absence of any characteristic symptom or group of symptoms in cases of uncomplicated retrodeviation.

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DISEASES OF CHILDREN.

Abscess of the Ethmoid and Antrum of Highmore.—J. Morrison Ray¹ was called to treat a child one year old which, as the result of an abscess over the malar region, had a sinus on the floor of the orbit near the canthus, with a free discharge of pus. The introduction of a probe discovered a large cavity, and in the mouth a scar was seen where there had been an opening just above the canine tooth. Under chloroform the author chiselled away until he entered a cavity, in which he found two or three teeth, which he scooped out, thinking that he had got into the maxillary sinus. As he could not get into the cavity containing

the pus, he decided, for the time being, to stop the operation and make further investigation. He then enlarged the external opening and packed it with gauze. Two days later, again under chloroform, he enlarged the original opening with the mallet and chisel and took away a large portion of the front wall of the superior maxilla, and so entered a large cavity which must have involved both the ethmoid and the antrum of Highmore. After two days the secretion was very much less, and the child improved rapidly. The case was probably originally a periostitis, later involving the bone itself and getting into the sinuses secondarily.

Acute Colitis in Children.—Edmund Cantley² describes an outbreak of this trouble and directs attention to the rarity of such an occurrence. Six out of thirty children were affected, and of these four died. Three out of thirteen adult women were attacked less severely and recovered. All the cases broke out in a certain London barracks, in rooms opening on to a common staircase. The lavatories, water supply, drainage, and food and milk supplies were inspected without finding any source of infection. Although the cases occurred during the hot months of the year, the weather was colder than usual at that time. In each case the onset was sudden, with vomiting, diarrhea, and pyrexia. The vomiting was persistent and frequent, and dependent on reflex irritation, though possibly it was caused by a toxin acting on the nerve centres. Anorexia was complete. The stools were very frequent, small, green, very offensive, and contained mucus and bright red blood and little or no fecal matter. There was no marked tenesmus, as a rule. In no instance was tenderness discoverable along the course of the colon. Sunken eyes, pallor, and an anxious look constituted the characteristic facies. Restlessness and a marked nervous prostration were present. The temperature may rise at first to 103° F. Irrigation of large intestine was a very difficult procedure in children, and was not attended by any marked results. Rest in bed, warmth, and maintenance of applicant's strength were the main features in the treatment.

Breast Milk, a Plea for its Conservation in Whole or in Part.—Thomas S. Southworth³ says that the chief responsibility in regard to the nursing of infants attaches to the obstetrician and to the general practitioner who attend confinements and care for the mother and child during the first days or weeks of infancy, for it is during this period that the subsequent nourishment of the child is usually determined. If the milk gives out, how often is the attempt made to improve its supply, other than by the use of malt beverages or extracts? The adult of average weight throws off from the body in twenty-four hours, by lungs, skin, and urine, from 69 to 89 ounces of water: to this must be added during lactation 20 to 40 ounces secreted by the breasts—we may say on an average three quarts of fluid. To supply the water necessary for normal excretion and secretion certainly three

quarts ought to be ingested and much fluid taken between meals. Tea, coffee, and beer carry with them stimulating properties which are hurtful. Water, milk, thin gruels, and cocoa are the best fluids to take during lactation. A liberal fluid diet should be instituted as soon after parturition as the mother is rested or has recovered from the anesthetic, and kept up between the meals of solid food, which in these days are given about three days later. Yellow corn-meal gruel is most effective and should be insisted on. Regulation of the bowels, breast massage if necessary, and the treatment of anemia if present, should be attended to. If in spite of all efforts the breast milk remain scanty, the indications are for supplementary feedings, and by no means for weaning as long as the breasts contain any milk worth mentioning. The infants who are nourished upon part bottle and part breast progress, as a rule, more steadily and uneventfully than do those who receive the bottle alone. Let no one count it a light matter to advise the early withdrawal of the breast, for in so doing, in no small proportion of cases, the child's life hangs in the balance.

Cancrum Oris.—William Seaman Bainbridge¹ reports two cases, one of which ended fatally in spite of operative measures. The second, that of a child of 16 months having an ulcerated patch under the upper lip, a fetid breath, temperature of 100° F., pulse of 124, and respiration 42, was placed under chloroform. A free incision was made on either side in the superior alveolar process down to the bone, which was found to be soft and spongy and of a gray color. The diseased tissue was entirely removed, leaving an opening in the upper jaw two inches and a half broad. Not only was the intermaxillary bone with its teeth removed, but the superior maxilla on either side was gnawed away by the rongeur, so that the cavity was connected with the nose and the left antrum of Highmore. The child was then more deeply anesthetized and the mouth carefully protected. Pure nitric acid was applied over the entire surface of the cavity of the bone. The wound was packed with gauze, and later irrigated every half-hour with peroxide of hydrogen followed by a boric-acid solution. Fluid diet, strychnine and whiskey were given. The patient at present looks perfectly healthy and strong. The only evidence of any previous trouble is the absence of the upper teeth.

Congenital Occlusion of the Duodenum.—Louise Cordes¹ reports a case, which makes the fifty-seventh reported in obtainable literature. The infant was a female, born at term, and four days old at death. The clinical symptoms were vomiting of nourishment and yellow fluid. The position of the occlusion was just above the opening of the ductus choledochus. There were no stomach contents; the intestines contained mucus and greenish-yellow fluid above the occlusion, meconium below. Liver and pancreas were both normal. The etiology was probably an error of development. The causes which may lead to intestinal occlu-

sion are numerous, some of the most important being errors of development, volvulus, fetal peritonitis, ulceration, pressure caused by new growth, abnormally long persistence of the omphalomesenteric duct, traction due to inguinal hernia, circulatory anomalies (absence of arterial branches and embolism of the superior mesenteric artery). In the case reported there existed in addition to the atresia an anomaly of the common bile duct, a branch of the same having been found leading into the dilated duodenum above the atresia. This accounts for one of the symptoms, namely, the vomiting of bile-stained fluid in spite of the position of the papilla below the occlusion. The author analyzes the other 56 cases of duodenal occlusion reported, and says that a number of facts, such as the repeated occurrence of duodenal occlusion near the site of the papilla, the existence, in probably more than one case, of anomalies of the duct system, the absence of Brunner's glands (in one case at least) at the point of and near the atresia, the striking absence of any signs of disease to which the condition might be traced, and the occurrence of other malformations than that of the duodenum in a certain number of cases, lead her to think that an error of development not yet explained may underlie this condition.

Cretinism, a Case of Sporadic.—Philip P. Barbour⁴ reports the case of a child who first came under observation when 5 months old, presenting the typical symptoms of cretinism. The family history is good in every particular, and there is nothing to account for the condition. Treatment has been with thyroid extract, of which the baby received one-third of a five-grain tablet three times a day. She improved rapidly, but the tablets had to be discontinued on account of untoward temperature symptoms. After a month's interval they were administered again, and this time she has been able to continue their use for three months without any unfavorable symptoms arising. The improvement is very marked, so much so as to lead to the hope that by continued treatment she may become almost a normal child. The differential diagnosis lies between sporadic and endemic cretinism, Mongolian imbecility, fetal rachitis or achondroplasia, and infantilism. In both cretinism and Mongolian imbecility there is the thick and protruding tongue and scanty and dry hair; but in the latter form the skin is soft and not infiltrated, the limbs are small-boned, the wrist is small, and the metacarpals very soft from their small size and the laxity of the ligaments. The fingers, while thick, taper at the point instead of being blunt. Achondroplasia resembles cretinism in the facial appearance, the head being large and broad, with pug nose and some protrusion of the tongue. The essential characteristic, however, is the markedly shortened, thick limbs and large joints. In intelligence the achondroplastic infant is like other babies, and it has the soft skin, delicate hair, and the normal temperature of other children. There is a peculiar curving of the middle and ring fingers away from each other. The sporadic cretin differs

from the endemic form principally in the fact that the thyroid gland is either atrophied or absent, whereas the endemic variety seems to be connected more or less closely with goitre. There are several features which must be watched in the administration of thyroid extract. With the improvement in the myxedematous condition there is a loss of weight until the mucoid substance has been absorbed from the skin and eliminated. The increased metabolism is apt to produce fever. With its advent the remedy should be discontinued and its administration cautiously resumed. The action of the heart is frequently accelerated; the pulse should be watched and the dose increased or diminished accordingly. Several observers have noted the effect of thyroid medication in increasing the growth of the long bones. In some cases the growth has been so rapid as seriously to impair their strength, and exaggerated curvatures have been the result. It is necessary to continue the observation and treatment of these cases after these cretinous symptoms have been relieved, though it has been found that the occasional administration of a large dose is sufficient to maintain the effect of the medicine.

Duhring's Disease in Childhood.—William S. Gottheil¹ reports two cases of dermatitis herpetiformis, which is more common in childhood than is generally supposed. In many instances it is doubtless wrongly diagnosed, and it is responsible for some of the refractory cases classified under the all-containing rubric of eczema. The disease shows itself as a superficial inflammatory eruption of an eczematous character most frequently. Multiformity, herpetic character, chronicity, recurrence, intense pruritus, and refractoriness to treatment are the characteristics that distinguish the disease from an ordinary eczema. Its causation is not well understood. Cases have occurred after physical or mental shock, but the two here recorded were apparently healthy individuals. Some cases occur in connection with pregnancy and parturition, some seem to be dependent upon septic infection. It occurs at all ages save infancy. Treatment is so unsatisfactory that the author now restricts himself to general tonic and hygienic measures, and believes that a change of air and scene, when possible, is more efficacious in postponing and preventing relapses than drugs. Locally any of the bland or cooling salves, or ichthyol in five or ten per cent solution or ointment, may be employed.

Embalmed Milk.—An editorial² calls attention to the use of preservative agents, most of which contain formaldehyde, by dairymen. It is said that some of the manufacturers of this preservative agent, sold under all kinds of fancy names and warranted to keep milk pure under all conditions, have combined and agree to protect those who use these vile mixtures from damage suits in case of complications with health authorities. It is well that physicians should be on their guard in case of sudden sickness in families, and ask for samples of milk, ice-cream, and butter used in the family, for analysis. Milk that re-

mains unsoured in hot weather without ice should be suspected. Several tests are described for the detection of formaldehyde, but the Rimini test is recommended most highly. The solutions should be freshly prepared as follows: *A.* Phenylhydrazine muriate, 8 grains; distilled water, 3½ fluid ounces. Dissolve. *B.* Sodium nitro-prusside, 8 grains; distilled water, 1 fluid ounce. Dissolve. *C.* Soda, U. S. P., ½ ounce; distilled water, 2 fluid ounces. Dissolve. To 4 fluid drachms of the suspected milk in a test tube add 10 drops of *A.* mix, and add 3 drops of *B.*; mix, and let 5 drops of *C.* run in *slowly* on the side of the test tube. In the presence of formaldehyde a blue color is *instantly* produced, changing, on standing, to red. In some milk the above blue line is supplanted by green.

Infantile Convulsions.—Francis Wayland Campbell⁶ gives the following directions for the treatment of convulsions. First allow free access of air to the patient by sending away the bystanders. Then give a chloroform inhalation to cut short the fit. When the convulsion has ceased place the child in a bath at 92° to 94° F. and sponge the head with cold water. If the case requires stimulation, add one ounce of mustard to each gallon of water at 98° to 106° F. To a child 2 years old or more give ten grains of calomel. If immediate action is desirable give an enema of warm soapsuds to which is added a small quantity of olive oil, warmed. Then place the patient on treatment by the following mixture:

Pot. brom.....	3 iss
Chloral hydrat.....	gr. viij.
Tinct. aconit.....	ʒtt xvi.
Sirup. simp.....	i.
Aq.....	iv.

M. and Sig. Teaspoonful every four hours.

Mashed potatoes often contain lumps which upset the child's digestion. In such a case give a half to one teaspoonful of dried alum dissolved in water as an emetic. If the convulsion be due to dentition, and the mucous membrane of the gum is stretched by a tooth near the surface, cut down to the tooth. In a child over a year old use tonics, give open-air life and sea baths, or sea-salt baths at home. Children who have had convulsions in early life should not be sent to school too soon. If they show signs of precocity their education must be carefully watched. If it is pressed, brain trouble may supervene, terminating in death or in pseudo-epilepsy, which, with advancing years, may develop into true epilepsy.

Intra- and Extrauterine Periods of Stress as Pathologic Factors in Pædiatry.—James G. Kiernan⁷ says that the development of man after birth is marked by periods during which certain ignorant functions are, so to speak, learned by the organs, and other functions pass into disuse. The signs marking these periods are sometimes clearly evident; the first, between birth and the age of 2 years, has its obvious feature—the appear-

ance of the first teeth. These, however, are nothing but an expression of the development of the nervous system governing growth. With this period begins the education of the child as to its relation to its surroundings. This period is rarely marked by evidences of mental stress to the ordinary observer, but there is no doubt that the complete unity of the mind constituted by balance is often either made or marred, so far as its foundation is concerned, during this period. Humoring of the child at this time frequently results in an undue development of its egotism, which requires careful training of the subsequent period if it is to be checked at all. Anger is very early shown in children. During the first two months even, the child evinces by movements of its eyelids and hands intense anger when the attempt is made to bathe it or to take something from it. During this period, therefore, the child can be taught to develop powers of self-control and recognition of the rights of others. Between 2 and 6 a child is unable to distinguish between ideas of contradictory character suggested by the same association, or between the desirable and the fact. Truth and falsehood are not instinctive, but result from checks acquired by the accumulation of facts. At this period, therefore, a good training must result in the accumulation of facts which will instruct the child to distinguish between its own wishes and outside facts. In short, the training of this period must be based essentially on the principle that there is a secondary I, as well as a primary one constituting the basis of selfishness. The development of the child after birth may be divided into the period of infancy from birth to 2 years, childhood from 2 to 6 years, boyhood and girlhood from 6 to 12, and puberty and adolescence from 14 to 25. Each of these periods is marked by certain phenomena of growth, more especially exhibiting themselves in changes in the osseous system, more particularly in the jaws and teeth. From 12 to 25 the reproductive system is one factor that has to be particularly reckoned with. Many of the phenomena charged to other causes are really due to the defects produced by failure under the struggle for existence between the organs at this period.

Rapid Osteoclasia for the Correction of Rachitic Deformities of the Legs.—Wallace Blanchard⁸ reports 262 cases of bowlegs, knock-knees, and anterior curved tibias corrected by rapid osteoclasia and osteokamptosis, without a single case presenting any injury even so slight as an abrasion to the soft parts, without anything but a simple fracture or bend, and without a single delayed union, and, so far as known, without an epiphyseal separation. The ages of the patients varied from 4 to 16 years, the average being 7 years and 9 months; the compression time in the osteoclast in no case exceeded eight seconds, and the time for all the details of the operation, from the start to the setting of the plaster-of-paris and removal from the table, seldom exceeded five and one-half minutes. All of these 262 cases were either per-

fectly corrected or so nearly so as to be straight for all practical purposes of use or appearance. The superiority of the ultimate results of osteoclasis over osteotomy, either cuneiform or linear, for anterior curved tibias, can hardly be estimated by one who has not seen a large number of dwarfed children changed to an average height. The correction of the stunted appearance is as desirable as that of the deformity itself, and in thirty consecutive cases of anterior curved tibias operated upon there was found to be an average lengthening of nine and seven-tenths per cent. Care should be taken that a real Grattan osteoclast and not an imitation be used. The weight of the perfected Grattan osteoclast is thirty-six and three-quarter pounds. It should be understood that the great weight and strength of the Grattan gives it that stability and force that enables the operator to be invariably successful in obtaining a simple fracture at the exact point desired, with the least expenditure of force and in eight seconds of time. Osteoclasis should not be performed for the correction of rachitic deformities of the legs until the bones have become so firm as to support the weight of the child without the least bending, but experience shows that no exact age can be given, generally any time after the sixth year, but sometimes the texture of the bones is sufficiently firm at 5, and occasionally even at 4. The unexampled rapidity of rapid osteoclasis, as well as the absence of pain following it, the freedom from the dangers attending bloody operations, the saving of time and expense in antiseptic precautions and after-care of open wounds, the lengthening instead of shortening of the legs of the frequently already dwarfed patients, are among the many undeniable advantages of rapid osteoclasis over osteotomy.

Streptococcal Infection Successfully Treated by Anti-streptococcus Serum.—J. S. Fowler^a reports the case of a child of 19 months suffering from a streptococcal stomatitis which led to a general infection. When the bacteriological examination assured the diagnosis, the child was in a very critical condition. He was suffering from severe blood poisoning, with a rapid and compressible pulse, great prostration and restlessness, and high temperature, to which was added difficulty in administering nourishment from the condition of the mouth. Physical signs of pneumonia developed in both lungs and the child's chances seemed a poor one. Streptococcus serum was injected daily or twice daily for ten days, one or two days being omitted, the doses being of 5 cubic centimetres each. The result was striking. The throat was practically clear within forty-eight hours, and the night succeeding the first dose was the best the patient had had since his illness began. Two abscesses developed after treatment was begun, showing that the systemic infection was not entirely prevented, although its effects were lessened. It is of interest to note that the temperature fell to normal before the abscesses were evacuated. A month later a second attack of pneumonia occurred without any warning and the writer thought it was proba-

bly due to a recrudescence of the infection—to a reinfection with organisms lying dormant in the lung. The attack was less severe than the first. Neither in this case nor in any other has the author seen ill consequences from the use of antistreptococcus serum: with ordinary precautions no local reaction occurs at the seat of injection. A good deal of collapse sometimes occurs an hour or two after the first few injections, for which reasons stimulants should be given in anticipation.

Syphilis of the Liver with Large Gummata in Late Childhood.—David L. Edsall¹ says that in most works on diseases of childhood practically no mention is made of the possibility of meeting grave syphilitic disease of the liver in late childhood. The conditions are no doubt extremely rare, but the importance of the recognition of their nature lies in the fact that a proper diagnosis may lead to un hoped-for and almost miraculous improvement. The case reported is that of a girl of 14 years presenting large, hard masses in the abdomen, evidently attached to the liver. She also had severe deafness, ozena, and scars of an interstitial keratitis on both corneæ. It was decided to treat the case as one of gummata of the liver, and the child was put upon daily inunctions of half a drachm of blue ointment, and was given potassium iodide in doses of three grains three times a day, increased one grain per dose. The patient left the hospital two and one-half months after admission; the tenderness of the liver was gone, and the masses had entirely disappeared, but the liver was enlarged and hard. Six months later the liver appeared to be absolutely normal. Whether the case be considered one of late hereditary syphilis or of syphilis acquired after birth is clinically of little importance; it is an instructive example of the necessity in late childhood, as well as in adult life and infancy, of keeping in mind the possibility of a syphilitic origin of severe disease of the liver, whether this seems to be mere chronic induration or has the clinical appearance of a new growth.

Tuberculosis of the Cranial Bones.—M. Villemin,¹⁰ during 1899 and 1900, observed 12 cases of this disease, leaving out tuberculosis of the mastoid. Four of the patients were boys, 8 girls. Their ages were 5 months, 10 months, 17 months, 2½ years, 9 years, three of 12 years, and one of 14. The bones affected were in 7 cases the frontal, in 2 the temporal, 2 the parietal, and 1 the occipital. Of these 12 cases, 11 were entirely cured, while 1 died. The former were all cases of superficial tuberculosis of the external surface of the bone, while the fatal case was one of perforating tuberculosis. In the benignant forms the usual course was, first, the appearance of a slow-growing tumor on the frontal bone. When it attained the size of a walnut the parents would bring the child to the hospital for examination. The tumor would be found to be fluctuating, subcutaneous, adherent to the cranium, not as a rule situated on the sutures. It would be irreducible and no impulse wave would be perceptible when the child cried or made straining movements, which of course forbade all

thought of communication with the tissues or with the meninges. Diagnosis might appear to be based on negative symptoms, but on undressing the child there was usually found some other tuberculous focus, or else a spina ventosa, a cicatrix of a cold abscess, multiple ganglion masses, etc. Surgical intervention having been decided on, an incision would be made and a little thickened, caseous pus would escape. A pyogenic, tuberculous membrane would be found, and, when removed, the external surface of the bone would appear shorn of its periosteum. Should there be no sequestrum, there are signs of superficial osteitis. In any case, the curette easily removes fungosities and tubercular membrane, slight tamponing secures hemostasis, and a few days later granulations appear and the wound cicatrizes in about a fortnight. This form of cranial tuberculosis, it is seen, is benignant and easily treated. The perforating and grave form is fortunately of much rarer occurrence.

Widal's Reaction.—Randle C. Rosenberger¹¹ makes a plea for uniformity of technique in this procedure. The points which he emphasizes are: 1. The use of a uniform dilution. 2. A definite time limit. 3. An agreement as to what constitutes a positive reaction. 4. The use of a culture of definite age, and a clear statement as to incubation or non-incubation. 5. A decision as to whether dried blood, fresh blood, or serum is to be used. 6. A stated number of tests to be made in a given case. 7. Dropping the terms "doubtful" and "pseudo" reaction. They are unscientific. A reaction should always be spoken of as either "positive" or "negative," and never as anything else. If there is cessation of motility and clumping of *all* the bacteria in the field (not some of them), this should be spoken of as a positive reaction. Where clumping without cessation of motility ensues, it should be called negative. In cases where some bacteria are grouped together and motility ceases, and at the same time individual bacilli outside of the groups still retain their motility, it is only possible after the agreed time limit has expired to speak of a "negative reaction." In such cases a second test would be necessary, for we know that diseases and conditions other than that of typhoid fever sometimes give a positive reaction, as, for instance, miliary tuberculosis, acute articular rheumatism, endocarditis, and septicemia. In fact *normal* blood will sometimes give the reaction.

H. M. Little¹² considers this reaction as a most valuable aid to the diagnosis of typhoid fever. In 151 cases in the Royal Victoria Hospital during the past twelve months the reaction was present in all cases but one, and appeared as early as the fourth and as late as the thirty-third day. He urges greater carefulness in the collection and preparation of specimens to be examined. Instead of a bouillon culture he recommends the growing of the bacilli on acid agar, and the making of an emulsion, not by mixing bacilli with sterilized water, but by allowing sterilized water to run down over the surface of the growth and collect in the

bottom of the tube. For purposes of examination nineteen drops of this emulsion culture are placed on a glass slide, one drop of clear serum added, and the whole intimately mixed. It has been recommended to use simply a drop of the mixture on a slide with a cover-slip over it, but general experience is in favor of the hanging drop. Though the typical reaction demands complete cessation of movement and clumping, not one case in fifty will give this in a reasonably short time. If only one drop be set up for examination, constant observation will be necessary; but if a control of afebrile blood be set up at the same time, comparison of the two will early give an idea of the condition of the suspected blood. Still better, if a typhoid case is available, a second control may show how much reaction is to be expected from the culture in use. It is well to set the controls up early and examine both for abnormalities, as this may save much time and inconvenience in the way of getting new specimens for examination.

Xeroderma Pigmentosum.—Bernard Wolff¹³ writes that while this disease is a rare one, it is no longer a novelty. It is prone to affect several members of the same family and shows a preference for those who are of the same sex. It is not hereditary or congenital. It usually appears during the first year of life and during the summer or late spring. Exposure to the sun's rays has not been demonstrated in a causal relation, though there can be little doubt of its influence. There are three well-defined stages in the evolution of the disease. In infancy, as a rule, or very early childhood, there appear on the face and hands of the person affected numerous freckle-like maculae, varying in size from a pin's head to that of a lentil. The freckles are first brown, later on they become black. There may or may not be a preceding stage of erythema. There is a gradual extension of the pigment spots to other parts of the body, and they become more numerous and more closely aggregated, and soon it is noticed that there are arborescent and punctate telangiectases showing among the spots of pigment, with here and there small pinkish areas in the skin which later become white. This marks the angiomatous and atrophic stage. The atrophy becomes more marked as the disease proceeds, the facial orifices becoming narrowed, and ectropion appearing as the lower eyelid is drawn down. At this period the xerodermatous skin becomes the seat of malignant new growths which may bring life to a rapid and miserable close or they may persist for years before causing death. The neoplasms partake of the character of the several varieties of cancer, without adhering constantly to any one of them.

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AN ADDRESS

DELIVERED AT THE OPENING OF THE SECTION OF OBSTETRIC MEDICINE
AND GYNECOLOGY AT THE ANNUAL MEETING OF THE BRITISH
MEDICAL ASSOCIATION IN CHELTENHAM, JULY 31, 1901.

BY

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of the Section of Obstetric Medicine and Gynecology.

My first duty, as President of the Section of Obstetrics and Gynecology, is to thank the Council of the British Medical Association for the high honor they have done me. No compliment could be more pleasing, and especially from the circumstance that I succeed those distinguished members of our profession who, from all parts of the United Kingdom, have, in previous years, occupied this position.

This is an historic occasion, inasmuch as it is the first meeting of the British Medical Association held in a new century. It is, therefore, only natural that we should seize upon the present as a suitable time to look backward and to ask how have obstetric medicine and gynecology advanced during the nineteenth century—a period more fertile in the results of scientific research than that of almost all the years that have gone before.

It was during the century that has recently come to a close that the great obstetrician, Simpson, discovered the practical application of anesthesia in labor, and that the methods of antisepsis and asepsis were gradually evolved; and these two all-important aids have really been the causes of the enormous advances in both obstetrics and gynecology during the past quarter of a century. By their combined help operations (such as Cesarean section and symphyseotomy) which had formerly been abandoned with regret, owing to their high mortality, have been re-established as recognized safe measures of practice, and many new and improved methods of treatment have been, from time to time, successfully introduced. Conditions which before were regarded as incurable were treated with marvellous success, and, as a result, both diagnosis and technique have been almost revolutionized, because during these operations the obstetrician or gynecologist was brought face to face with situations hitherto undescribed, while, as a further result, the morbid specimens removed have given to the science of pathology an enormous impetus by affording an opportunity for the study of interesting material which has not before been described.

In the early part of the nineteenth century Naegele's brochure on "The Mechanism of Labor" gave us what Tyler Smith called the "Euclid of Obstetrics"; in more recent years Barbour's "Anatomy of Labor," as studied in frozen sections, has done much to make our knowledge of that interesting process more correct. While the eighteenth century will always be remarkable for the work done by William Hunter on obstetrical anatomy as investigated by dissection, the nineteenth century has enormously advanced our ideas of the subject by enabling us—thanks to improved methods—to observe it as presented in a series of frozen sections. By a careful study of these sections, taken at successive stages, we have the whole progress of labor placed before our eyes, and we can follow it step by step as we read the pages of a book. Several of the leaves are still wanting in this volume of sectional anatomy, but when it is complete we shall have what I may term a sort of cinematograph representation of the whole progress of labor which undoubtedly will exercise a most important influence on clinical work. The nineteenth century will always have associated with it the practical application of abdominal palpation, which is such an addition to aseptic midwifery by limiting the necessity for frequent vaginal examinations.

It was during the century that is gone that the axis-traction forceps was invented, that the management of the third stage of labor was placed on a scientific basis, and that we have learned better how to deal with such complications as the hemorrhages which may occur both before and after the birth of the child. Almost all our knowledge of the diagnosis and treatment of extrauterine pregnancy and of deciduoma malignum has been gained, and by the perfection of other operative measures craniotomy on a living child has been, we hope, banished. Some in this room remember when it was thought that all lying-in hospitals must be closed owing to their being hotbeds of puerperal fever; at the close of the century we had to admit that in no place is a parturient woman so safe. Turning to the sister science, gynecology, what rapid and brilliant strides it has made in the last twenty-five years! Diagnosis has been rendered more exact by the bimanual method of examination in the dorsal posture. Proper views have arisen as to uterine displacements, and, owing to the success of ovariectomy, not only have thousands of years been added to the sum total of woman's life, but, as a result, the great triumphs of abdominal and pelvic surgery have followed. Vaginal celiectomy has been established as a most useful alternative in many cases to abdominal section, and, largely owing to the Trendelenburg position, abdominal hysterectomy for fibroids has become a more and more successful proceeding. Our ideas as to the inflammatory diseases of the appendages and of pelvic hematocele have been revolutionized. But with all this enormous progress there are two subjects about which, unfortunately, we cannot boast—puerperal fever and uterine cancer. It is indeed a terrible blot on our obstetric art that while within the memory of many of us puerperal fever has been banished from maternities in which formerly it was so prevalent, the same good results have not followed in general practice. I will give statistics from the three kingdoms.

MORTALITY FROM PUERPERAL FEVER IN ENGLAND AND WALES.

In 1847-1856 the mortality from puerperal fever was, in England and Wales, 1.8 per 1,000. It rose to 2.28 in 1875-1884 and to 2.46 in 1886-1895.

The following figures (which I owe to the kindness of Dr. Boxall, who has taken such an interest in this question) give the most recent available statistics:

Year.	Deaths from puerperal fever.	Death rate from puerperal fever per thousand births.
1895	1,849	2.0
1896	2,053	2.2
1897	1,836	1.9
1898	1,707	1.8
1899	1,908	2.0

Dr. John Tatham, Statistical Superintendent, General Register Office, has kindly supplied me with the following most interesting details:

DEATHS OF WOMEN AT ALL AGES FROM PUERPERAL FEVER AND OTHER ACCIDENTS OF CHILDBIRTH PER THOUSAND REGISTERED BIRTHS IN ENGLAND AND WALES.

1871-80	4.72 per 1000.
1881-90.....	4.73 ..
1891-99.....	5.12 ..

IRELAND.

The following return, showing the number of deaths in Ireland, tabulated under parturition (accidents) and puerperal fever, I owe to the courtesy of Mr. R. E. Matheson, Registrar-General of Ireland:

Years.	Total.	Death rate per thousand births registered.
1895	769	7.2
1896	679	6.3
1897	696	6.5
1898	560	5.3
1899	601	5.8

For the same years the deaths from puerperal fever for the whole of Ireland were:

Year.	Rate per thousand births.
1895.....	3.0
1896.....	2.3
1897.....	2.1
1898.....	1.7
1899.....	2.0

I am obliged to the Registrar-General of Scotland for giving me the following:

TABLE SHOWING THE DEATH RATE FROM PUERPERAL FEVER IN SCOTLAND
DURING THE FIVE YEARS 1895-1899

Year.	Number of deaths.	Proportion in every one hundred thousand of female population.	Proportion in every ten thousand specified causes of death.
1895	253	12	62
1896	220	9	63
1897	205	9	52
1898	227	10	59
1899	214	10	54

When we contrast these lamentable statistics with the following returns for the last two years of the practice of the Rotunda Hospital, the largest lying-in charity in the three kingdoms,

MORTALITY AT THE ROTUNDA HOSPITAL FOR THE YEARS
1898-1899 AND 1899-1900

	1898-1899	1899-1900
<i>Intern Maternity.</i>		
Total cases.....	1591	1560
Total mortality.....	10	6
Percentage mortality.....	0.62	0.38
Mortality from sepsis (2 of these admitted septic).....	5	0
<i>Extern Maternity</i>		
Total cases.....	2163	2109
Total mortality.....	8	5
Percentage mortality.....	0.36	0.23
Mortality from sepsis.....	2	0
Total cases.....	3754	3669
Total percentage.....	0.47	0.27
For 2 years total.....	7423	
Percentage	0.39	

they should make those of us who are teachers feel how great is our responsibility, and that our efforts should be redoubled in urging upon students the importance of regarding the process of labor as a natural one and not to be lightly interfered with unless Nature herself should fail; and that if interference became necessary, they should use exactly the same antiseptic precautions that they see employed in any gynecological operation. It is by the observance of these two principles—the avoidance of meddlesome interference and by the rigid use of

antiseptic principles—that we may hope that in the present century the occurrence of puerperal fever will eventually be as rare in private practice as it became in the nineteenth century in lying-in hospitals.

The other subject in regard to which, I am afraid, we cannot congratulate ourselves is cancer of the uterus. How does it originate? Why is it so common? Nay, more, why (at least this is my experience) is it becoming more prevalent? These questions surely demand solution. I am reluctantly forced to agree with a statement made by a distinguished American confrère, Dr. Baldy, in a paper read before the Section on Gynecology, College of Physicians of Philadelphia, February 21, 1901: "Cancer affecting the cervix uteri is one of the most deadly diseases with which medical men have to deal. By far the largest proportion of these patients eventually die of cancer, be it from the primary lesion or from a recurrence. And this in spite of all that has been done for them either surgically or medically." No doubt some gynecologists may say the explanation is that operation is not done early enough, but, as Dr. Baldy fairly asks, "What is sufficiently early?" Every gynecologist of experience must admit he or she has met with cases where recurrence took place rapidly in what seemed to be, at the time of operation, a most promising condition, while again women with extensive disease have remained well for years after operation. We have passed through the stages of vaginal and of abdominal hysterectomy for cancer of the cervix, but, I ask, have we up to the present made much real progress? It is not the immediate results of the operation we want to know; it is the subsequent history of the patients. At the present time we can unfortunately suggest no other plan of treatment of cancer of the cervix except by operation; but surely we cannot boast much if the statement of Baldy is correct that the most recent statistics, those reported in Cullen's work on "Cancer" and the review of cases by Winter, of Königsberg, show that in reality less than five per cent of all cases applying for treatment of cancer of the uterus are saved by operation. The obvious lesson is that to insure any real success we must urge on practitioners the enormous importance of early diagnosis and that the one symptom which should always be regarded with suspicion is abnormal hemorrhage. Any woman with abnormal hemorrhage at any age, and especially if she is over 35 years, demands

the most careful clinical examination. Let us hope for greater progress in the future.

Having glanced, in what, I am afraid, is a very cursory survey, at the progress of these subjects which specially concern us, let me turn to another question of the greatest interest to the state as well as to the medical profession. During the present year the public press has been calling special attention to the falling birth rate. It would appear that in England and Wales, in 1861-71, the birth rate per 1,000 was 34.8; in 1871-81 it was 34.7; in 1891 it was 31.4 per 1,000, and since then it has steadily gone down, until in the last year of the century, 1900, it was only 29 per 1,000. In 1875, 35 children were born in the United Kingdom for each 1,000 of the population, while in 1900 there were only 29. In other words, this means, for our population of forty-one and a half millions, we are losing 249,000 children annually and the birth rate has fallen by 2.67 in the last ten years. The actual increase of the population of England and Wales is due to the fall in the death rate and the increase of immigration.

We are thus rapidly in England approaching the condition prevailing for some time in France and America. It is not for me at present to discuss the causes of this declining birth rate; rather my duty is to ask, what remedy can we as doctors suggest to combat a state of matters which, from a national and imperial standpoint, must be regarded as most unsatisfactory? If fewer children are, in the future, to be born in this country, we must redouble our efforts to lower the awful death rate of infants, which during the first year of life amounts in England to 154 per 1,000, by teaching the people to pay much greater attention to rearing their children properly, and by urging the public authorities to provide an adequate supply of pure milk. Our American friends are far ahead of us in such matters, and they showed their usual extraordinary enterprise last summer when they sent pure, non-sterilized milk, from various parts of the States (Illinois, New Jersey, and New York), to the Paris Exhibition, where it was actually pronounced better than the average milk sold in the grounds. Quite recently "The Rockefeller Institution for Medical Research," founded by a gift of £40,000 from the millionaire whose name it bears, has decided that the first investigations to be undertaken by the scientific experts connected with it will be to co-operate with the New York Board of Health in studying the milk supply and the con-

taminated article as a source of danger. But we may also attack this serious problem in another way by taking greater precautions, when a woman is pregnant, that she may give birth both to a living and healthy child; in other words, we must take more care to combat those conditions which are so dangerous to the child's life before and during its birth. I am afraid it is still too frequently the practice of the present day, when a patient engages a medical man to attend at her confinement, simply to note the engagement, to give a few general directions, or perchance none at all, and perhaps, in some cases, to examine the urine. May I urge that obstetricians should give a much more careful attention to patients who are pregnant, and especially in the case of those looking forward to their first confinement? A pregnant woman, when she engages a doctor to attend her, should be examined as carefully as if she were an applicant for life insurance; in this way he may at an early date detect a flaw in some of her organs (heart, kidneys, lungs, etc.), the knowledge of which may lead him to adopt a judicious prophylactic treatment. We should instruct our pregnant patients on such questions as diet, exercise, and management of the secretions; and a most careful examination should be made of the urine from the fourth month onward, not merely as to the presence of albumin, but in reference to its total amount and the reduction of urea. In this way a form of toxemia (eclampsia), so fatal to mother and child, may from its early detection be carefully warded off; for it must be admitted that, in the vast majority of cases, the treatment of eclampsia, like postpartum hemorrhage, is its prevention. Toward the end of gestation a most careful abdominal examination should be made, so that we may learn the position of the fetus, the amount of liquor amnii, the presence or not of an abdominal tumor; and if there is the least suspicion of deformity, the pelvic cavity should be most carefully measured. We must also be on our guard against the dread influence of the syphilitic poison and the injurious effects of anemia. In the case of multiparæ an accurate history of previous pregnancies and labors is of the utmost importance. In this way, by a careful and, if necessary, by a repeated examination of the patient, we may by an early detection of complications ward them off or keep them in such abeyance that their danger is minimized; and if there should be any deformity of the pelvis we can make up our mind what method of delivery is best suited for each particular case. By all these measures we

hope that not only a living but a healthy child may be born, and that by our careful management of the patient during and after her confinement no subsequent gynecological disease may ensue, which so often gives rise either to a permanent sterility or to an early subsequent miscarriage.

SCRATCH-MARKS ON THE WAX-TIPPED CATHETER AS A MEANS
OF DETERMINING THE PRESENCE OF STONE IN
THE KIDNEY AND IN THE URETER.¹

BY

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(With plates and fourteen illustrations.)

THERE is no other means of ascertaining the presence of calculus in the urinary tract as direct as my method of passing a wax-tipped catheter up the ureter into the kidney.

If the catheter is guided so that the waxed end does not rub against the end of the speculum, and if it is withdrawn with care so as to avoid contact with the vulvar hairs, there is then no other possible source of error. If scratch-marks are found after these precautions are taken, a stone must be present in the urinary tract.

The wax mixture is made of dental wax and olive oil mixed and melted together in the proportion of two parts wax to one of oil; in hot weather the amount of wax must be increased to three parts. In this combination we secure a medium which is not soft enough to be impressed by the mucous tissues of the body, and yet is sufficiently soft to receive an immediate impress from any stone with which it comes into contact, however slight.

I keep my wax mixture in a small, wide-mouthed bottle, and when it is wanted for use I hold the bottle over an alcohol flame for one or two minutes, so as to melt the wax; the renal catheter, $1\frac{3}{4}$ to 2 millimetres in diameter, is then dipped into the liquid up to the eye, which must not be occluded, and is quickly withdrawn. The wax at once hardens in the air, leaving the end of

¹ Read before the American Gynecological Society, 1901.

the catheter coated with a smooth, shining surface easily impressed by contact with any hard body whatever, but not affected by soft, moist tissue.

The entire circumference of the tip of the catheter must be coated evenly. It is best not to dip the instrument into the mixture more often than is necessary, in order to avoid heaping up a mass of wax on the end, where it is liable to be rubbed off in a narrow ureteral orifice. Care must also be exercised to prevent any water running down out of the catheter and mixing with the melted wax as it hardens, for this causes little blebs and results in a broken surface.

It is well to examine the wax tip with a pocket lens before it is used, noting its exact condition and any striæ or other peculiarities produced by irregular hardening of the wax. A sterilized towel is then laid on the table and the catheter placed upon it, with its tip projecting well over the edge, until needed for use.

The patient, suitably prepared, is now put in the knee-chest posture, a number 10 or 11 speculum introduced, and the ureteral orifice exposed.

The examiner now puts on a sterilized thumb and two-finger glove, such as I have had made for this purpose, takes up the catheter stiffened by its stylet, dips the point carefully in a little boroglyceride to lubricate it, and then proceeds to introduce it into the ureter, if possible without touching the speculum at any point with the waxed tip. To do this requires skill and a little training, which can be acquired just as well by practice beforehand, and outside of the body.

The secret of success in conducting the waxed tip up into the ureter without contact with the speculum lies in the use the examiner learns to make of the outer rim of the straight tube on which he rests the catheter, and by which he guides the latter up the clear lumen. It would seem at first sight excessively difficult to do this, but such is not the case with a steady hand and with practice.

When the ureteral orifice, distant about one centimetre from the end of the speculum, is reached, the examiner then gives his painstaking attention to the effort to carry the tip into the ureter at the very first trial, and in this he will succeed if his aim is good, if the ureteral orifice is not contracted (or stric-tured), as I have often found it, and if the wax mass on the end of the catheter is not too big. If the catheter touches the side of

the speculum as it passes up, the rubbing contact forms a facet on one side of the wax which is easily distinguished from a scratch-mark (Fig. 1).

If, however, the examiner fails to carry the tip into the ureter the first time, and is therefore obliged to withdraw it and make one or more successive efforts, the wax is liable to be ploughed up by the sharp and. it may be, rough end of the speculum in a way which is likely to prove disastrously misleading when the instrument is withdrawn at the end of the examination and the tip studied with a lens.

I make it a rule, therefore, if there is any doubt arising from this source, to repeat the examination with a fresh catheter. Sometimes I can see perfectly what the end of the catheter, projected well beyond the speculum, is doing, and I do not then necessarily repeat the test. As the catheter is stripped off from its stylet and passes up the ureter into the kidney, the examiner's attention, as well as his sense of touch, must be on the alert to note instantly any obstruction, however slight, for in this way he is able to detect the position and measure the location of a ureteral calculus, as well as to recognize the moment when the catheter touches the top of the pelvis of the kidney. I then, before withdrawing the stylet, move the catheter up and down several times to the extent of four or five centimetres, so as to insure contact with the stone, if one lies in the pelvis.

The renal catheter may give evidence of the presence of a stone in any of the following ways:

When the instrument strikes the stone in the kidney, and more especially in the ureter, the impression of an obstruction is conveyed to the fingers, or else that of entrance into a difficult stricture, the passage through which requires a little pushing and persuasion.

As the catheter passes a ureteral stone, or as it enters the renal pelvis, there is often an immediate discharge of urine far in excess of possible secretion; this urine is altered in specific gravity, it contains much less urea than the mixed urine from the bladder or that from the opposite side, and it may contain pus; such an escape may even take place before the stylet is withdrawn.

The injection of a weak solution of hydrochloric acid (15 cubic centimetres of a one-half per cent solution, withdrawn in ten minutes) will demonstrate the presence of an excess of cal-

cium and magnesium phosphates in one kidney, as compared with the urine from the opposite side.

The withdrawal of the catheter may be hindered by the instrument being wedged, as though it were in the bite of a stricture.

The stone sometimes occasions a grating sensation as the catheter is withdrawn.

A fragment of stone may be brought away in the eye of the catheter, or one or more fragments may be washed out by the injection of fluid into the kidney.



FIG. 1.



FIG. 2.



FIG. 3.

FIG. 1.—Showing mark on wax tip caused by contact with the side of the speculum.

FIG. 2.—Showing scratch-marks from renal stone shown in Fig. 3.

FIG. 3.—Renal calculus, x 2 diameters.

Débris containing minute pieces of stone, which appear as little black specks, may be brought away immediately by suction, or they may be found in the urine after the withdrawal of the catheter.

In either of the two latter contingencies an opportunity is afforded for microscopic or microchemic examination.

Attention has been called to the necessity for care and skill on the part of the examiner in the introduction of the wax-tipped catheter, for without the constant exercise of these he is liable to be misled by scratch-marks occasioned by brushing the wax

tip against the side of the speculum in the course of repeated efforts to carry the former into the ureter. Four cases of error arising from this cause occurred in the early use of the method. In all of them the history pointed to calculus in the urinary tract, and scratch-marks were found upon introduction of the catheter. No stone was present, however, upon operation.

The value of the method of catheterization with a wax-tipped catheter was first demonstrated by its successful use in calculus of the kidney; the opportunity to establish the presence of a stone in the ureter by means of the method did not occur until later. The cases in which a diagnosis of renal calculus was made from the presence of scratch-marks, and confirmed by a stone found upon subsequent operation, are as follows:

CASE I.—Mrs. W., August, 1895. Introduction of a metal catheter brought down a small quantity of urine containing pus, and also some fine fragments that proved to be uric acid. On withdrawing the catheter an irregular piece of stone was found in its eye, the appearance of which showed clearly that it had been freshly broken off. The smooth surface of the catheter was chipped on one side and the round end hammered down and scratched. A diagnosis of renal calculus was made, and a stone found on operation about two years later.

CASE II.—Mrs. P. (J. H. H. 4102), January, 1896. A diagnosis of right renal calculus was made from the wax-tipped catheter, which showed fine transverse striae. On operation a stone 2 x 1.5 centimetres was found and removed.¹

CASE III.—Mrs. A., January, 1898. A diagnosis of renal calculus was made from scratch-marks. On operation a stone 2 x 1.5 centimetres was found and removed.¹

CASE IV.—Mrs. G. (J. H. H. 7455), December, 1899. The introduction of the wax-tipped catheter into the left kidney was followed by a flow of clear fluid immediately upon withdrawal of the stylet; long scratch-marks, extending the whole length of the wax surface, were present (see Fig. 2). A diagnosis was made of renal calculus with hydronephrosis. On operation a stone 8 millimetres in length was found and removed (see Fig. 3).

CASE V.—Mrs. R. (San. 878), January, 1900. This patient had had absolutely no symptoms pointing to calculus, the only abnormality being a proteus infection in the urine. The introduc-

¹ Operative Gynecology, vol. i., p. 450.

tion of the catheter into the left kidney was followed by the escape of two cubic centimetres of slightly turbid urine containing pus; the wax tip showed distinct gouge-marks down one side (see Fig. 4). Injection of hydrochloric acid into the pelvis of the kidney showed an excess of calcium and magnesium phosphates in the urine as compared with the amount present in the same quantity of urine from the other side.¹ Diagnosis, renal calculus. On operation a large, branching calculus was found and removed.

CASE VI.—Miss T. (J. H. H. 7648), March, 1900. The patient had had attacks of renal colic on the right side for four

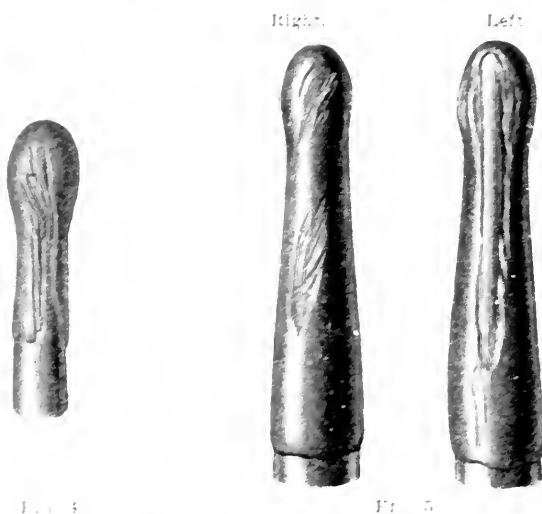


FIG. 4

FIG. 5

FIG. 4. Scratch marks caused by renal calculus.

FIG. 5. Scratch marks from calculi of both kidneys.

years. The last of these was accompanied by pain on the left side. Both ureters were catheterized. A double row of oblique scratch-marks were found on the wax tip introduced into the right side, and a series of deep gouges on that introduced into the left side (see Fig. 5). Diagnosis, double renal calculus. Operation upon the right kidney by bringing it down until the lower pole could be reached. An incision was then made in this, and a number of calculi, branching in all parts of the kidney, were found and removed separately. The calculi in the upper pole were removed by invaginating it in the direction of the wound.

CASE VII. Mrs. D. (San. 935), April, 1900. Scratch-marks

¹Journal of American Medical Association, May 18, 1901.

were found on catheterization of the left kidney. Diagnosis, renal calculus. On operation some months later a stone was found and removed.

The value of the wax-tipped catheter in the diagnosis of stone in the ureter, as well as in stone in the kidney, has been demonstrated on three occasions.

CASE VIII.—Mrs. R. (J. H. H., Dr. Halsted's service), October, 1900. Introduction of the catheter into the left ureter was followed by an immediate and copious flow of turbid urine containing pus. When the catheter was withdrawn from three to four centimetres it was felt to be grasped, and then to pass by some obstruction, imparting at the same time a grating sensation to the fingers; after this it was readily removed. The wax tip



FIG. 6.



FIG. 7.



FIG. 8.

FIG. 6.—Scratch-marks—catheter passed from below.

FIG. 7. Scratch marks—catheter passed from above.

FIG. 8. Scratch marks from renal calculus.

showed long, deep gouges extending the whole length of the catheter (see Fig. 6). Diagnosis, renal calculus with hydronephrosis. On operation no stone was found in the renal pelvis. A wax-tipped bougie was then passed *down* the ureter and met with an obstruction twenty-seven centimetres from the renal opening, past which it was gently pushed. Long, deep scratch-marks were seen on its surface (see Fig. 7). The fact that the obstruction was now near the vesical opening suggested that a calculus had slipped down the ureter to within a few centimetres of its external orifice. Vaginal examination showed a distinct nodule high up in the left fornix. An opening was then made in the vaginal wall, the ureter was incised over the enlargement, and a rough calculus extracted with a right-angled tenaculum.

CASE IX.—Mrs. R. (J. H. H. 6872), April, 1899. Catheteri-

zation of the ureters showed scratch-marks upon the left side. On a second occasion the catheter was distinctly felt to pass through one or more strictures in the middle or posterior pelvis of the left kidney. Operation, total excision of the left kidney and ureter, when a small stone 2.9×1.15 centimetres was found lying near the external ureteral orifice.

CASE X.—Mrs. H., January, 1900.¹ The patient had suffered for a week from an attack of renal colic accompanied by frequent urination and some hematuria. Vaginal examination revealed a distinct, firm, and very painful enlargement on the left side about half-way between the internal ureteral orifice and the cervix uteri. After the injection of a one per cent solution



FIG. 9.

FIG. 9.—Ureteral calculus causing scratch-marks shown in Fig. 8. Fragment of stone found in urine. Magnified twice.



FIG. 10.

FIG. 10.—Scratch-marks from renal calculus.

of cocaine directly into the ureter and the surrounding tissues through the vaginal wall, a metal catheter was introduced and was followed by the escape of eight cubic centimetres of normal urine, showing the presence of a hydroureter. A ureteral dilator 3 millimetres in diameter was next introduced and the ureteral orifice thoroughly stretched. A wax-tipped catheter was then carried up into the renal pelvis, when another escape of urine to the amount of sixteen cubic centimetres occurred, showing the cause of the renal colic. The wax tip showed a series of fine, longitudinal striæ (see Fig. 8). A small, buff-colored stone one millimetre in diameter was found in the urine drawn off by the catheter, as well as a number of minute fragments

¹ Journal of the American Medical Association, March 3, 1900.

which proved on examination to be bits of uric acid. As the ureteral orifice had been well dilated, it was not deemed wise to interfere further, and, nineteen hours after the dilatation of the stricture, an oblong stone with tapering ends, measuring 10×3 millimetres, was expelled with immediate relief of all the symptoms (see Fig. 9).

The fact that enlargement of the external ureteral orifice to the exact size of the stone was followed by the escape of the latter within twenty-four hours suggests dilatation of the ureter as a useful method for the relief of ureteral calculus, by promoting its escape through natural channels and thus avoiding operation.

Another method for accomplishing the same end, by means of sterilized oil injected into the ureter, has been recently recommended by Kolischer. About three years since he reported to the Vienna Medical Society a case in which a stone was found impacted in the left ureter several inches above the vesical opening, the impaction and the exact localization of the concrement having been determined by a metal-tipped ureteral catheter. Injection of thirty cubic centimetres of sterilized vaseline oil freed the stone and brought it down into the bladder, from which the woman passed it spontaneously within an hour.¹ A similar case is reported by Caspar, in which the injection of oil into the ureter of a man was followed by the expulsion of a stone in the urine after an interval of some days.²

CASE XL.—Mrs. J. (J. H. H. 7762). The patient had had severe attacks of renal colic for eleven years. The introduction of the wax-tipped catheter on the right side was followed by a very free flow of urine containing pus. On attempting to withdraw the catheter it became engaged until within 12.5 centimetres of the external ureteral orifice. One side of the wax tip showed long, deep gouges (see Fig. 10). Diagnosis, ureteral calculus. The stone could be felt through the vault of the vagina when fixed by a hand on the abdomen. An opening was, therefore, made in the vaginal vault to the right of the cervix, the ureter was incised, and a stone measuring 2.3×1 centimetres was extracted with alligator forceps.

An analysis of the foregoing cases shows that not only do they all demonstrate that scratch-marks upon the wax-tipped cath-

¹ Quoted in Journal of the American Medical Association, vol. xxxiv., p. 889.

² Berliner klin. Wochenschrift, 1899.

ter are an efficient means of diagnosis in calculus of the urinary tract, but that several of them illustrate the other diagnostic points for which the method of catheterization of the ureters is valuable. In four cases, 4, 8, 10, and 11, there was an immediate escape of urine in amount far exceeding possible secretion; in two, 8 and 11, the catheter was felt to be wedged upon withdrawal; in one, 5, the injection of hydrochloric acid showed the presence of an excess of calcium and magnesium

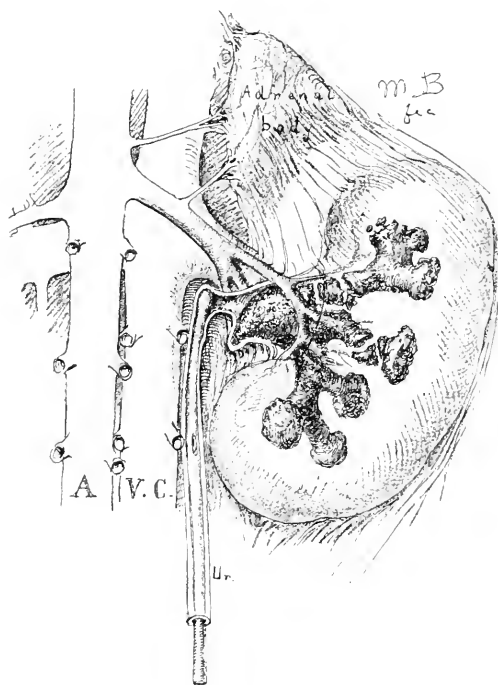


FIG. 11.—Kidney slightly descended. Upper pole turned outward.

phosphates in the urine of one kidney as compared with the urine of the other; in two, 1 and 10, minute pieces of stone formed of uric acid were found in the urine drawn off by the catheter, while in one of these, 1, a piece of stone was broken off and brought away in the eye of the catheter; and in one case, 8, the sense of obstruction caused by the instrument striking the stone on entrance was present, as well as the grating sensation imparted to the fingers on withdrawal.

In making a diagnosis by means of the wax-tipped catheter,

it must always be remembered that although the presence of scratch-marks (when the instrument is used with care and skill) is satisfactory evidence of calculus in the urinary tract, the failure to obtain scratch-marks does not necessarily establish the absence of stone. Several cases have occurred in which no scratch-marks were obtained when the ureters were catheterized, and yet a calculus was found upon subsequent operation. In some of these cases the error in diagnosis has been proved to arise from an anatomical peculiarity in the urinary tract; and

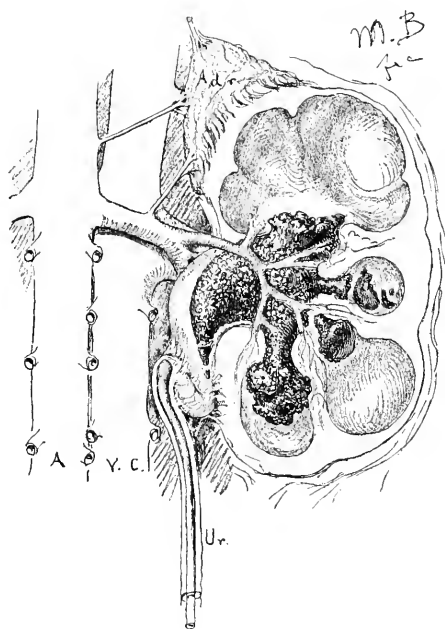


FIG. 12.—Kink in ureter near pelvis of kidney.

in others there is every reason to believe that such an abnormality existed. These variations from normal by which the examiner can be misled are of three kinds:

First, those in which a malposition of the kidney (see Fig. 11) or a kink in the ureter (see Fig. 12) prevents the entrance of the catheter into the pelvis of the kidney unless the difficulty can be overcome.

Second, those in which the stone is embedded in the structure of one of the calyces so deeply or in such a manner that it is impossible for the catheter to come in contact with it (see Fig. 13).

Third, those in which some peculiarity in the anatomy of the urinary tract renders the direction taken by the catheter misleading. In the case of a divided pelvis, where one division only is a continuation of the ureter, the catheter cannot pass except into this division, and a stone lying in the other will escape detection (see Fig. 14). In the case of a double pelvis and a double ureter, if the two ureters unite and empty into the bladder by a common orifice, it is a matter of chance whether the catheter, after passing the junction, will enter the ureter leading to the

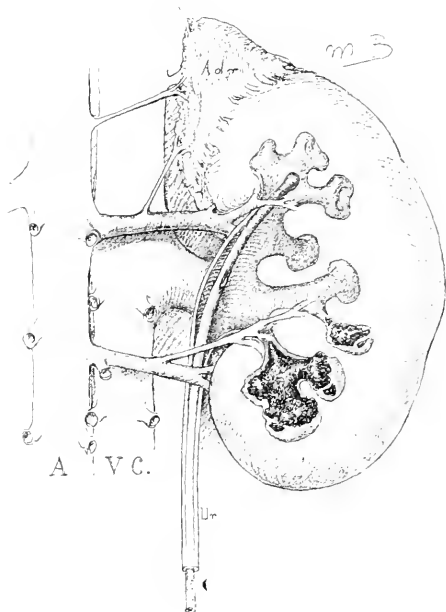


FIG. 13. Pelvis with three major calyces. The stone in lower major calyx; bougie in upper major calyx.

pelvis that contains the stone or the one that does not; and there is no way by which the examiner can ascertain this peculiarity when it exists (see Plate 1). If, on the contrary, the two ureters remain separate and empty into the bladder by two distinct orifices, the existence of these can be recognized on examination of the bladder and the catheter introduced into each (see Plate 2). *The possibility of two ureteral orifices on the same side should always be borne in mind, and the presence of a second opening ascertained or excluded.* Should a second orifice exist

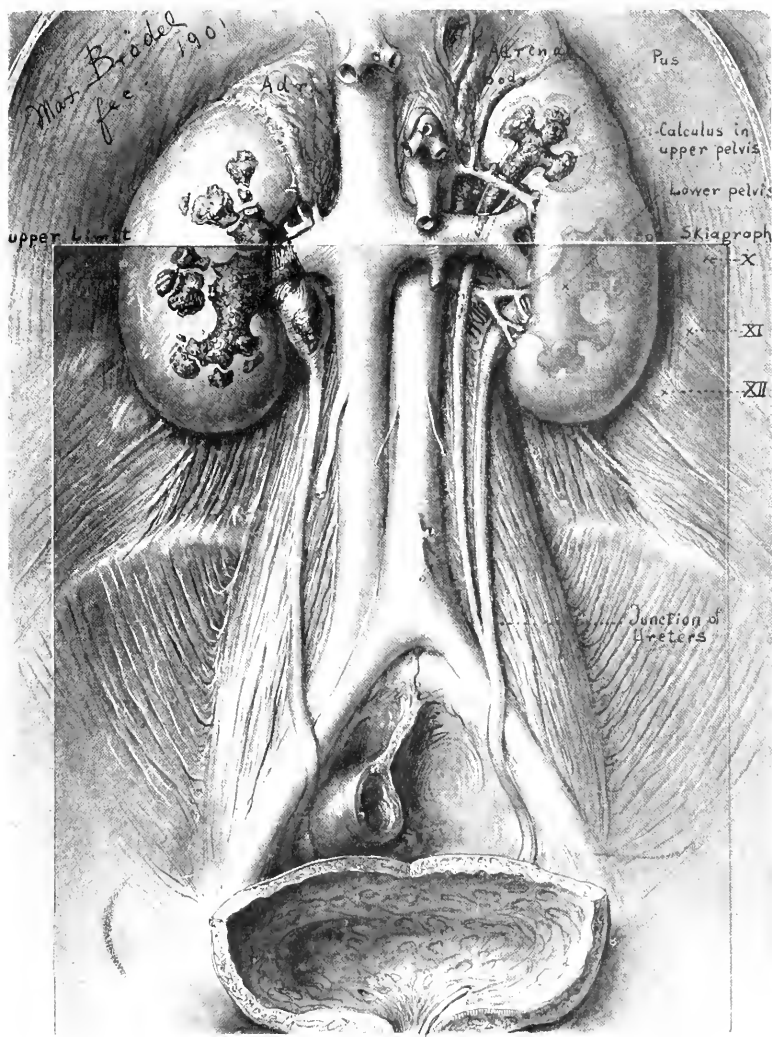


PLATE I

KIDNEY WITH DOUBLE PELVIS AND DOUBLE URETERS—A. W. P.

it will usually be found nearer to the median line than the first, and also nearer to the internal opening of the urethra.

It seems desirable, in conclusion, to emphasize the following points:

1. Catheterization of the ureters with a wax-tipped catheter is the most direct means of ascertaining the presence of calculus in the urinary tract.

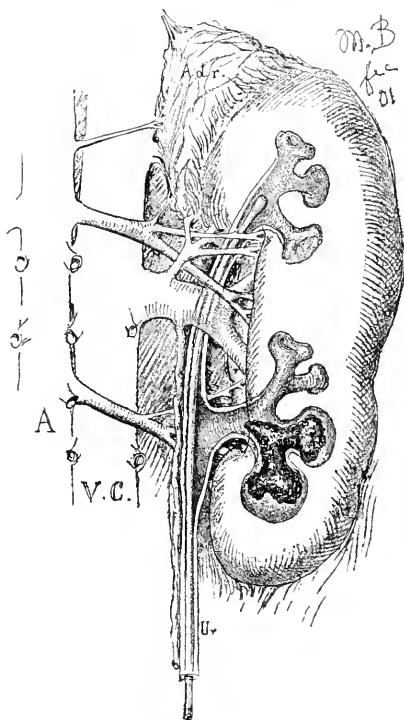


FIG. 14.—Divided pelvis, upper division being continuation of ureter. Stone in lower division, bougie in upper.

2. The success of the method depends upon care and skill on the part of the examiner, together with attention to detail in the preparation of the instrument.

3. The presence of scratch-marks is the most important feature in diagnosis of calculus by this means, but the method affords valuable confirmatory evidence in other ways.

4. In ureteral calculus the method of dilating the ureter and

thus inducing the escape of the stone through the natural channel may obviate the necessity for operation.

5. The presence of scratch-marks, if all precautions have been taken, is positive evidence of the existence of calculus, but the absence of scratch-marks cannot be accepted as proof that no stone exists.

6. The possible presence of a double ureter, with two openings into the bladder, should always be borne in mind.

THREE CASES OF CESAREAN SECTION, AND A CONSIDERATION OF THE INDICATION FOR CRANIOTOMY.

BY

JOSEPH B. DE LEE, M.D.,

Professor of Obstetrics, Northwestern University Medical School; Obstetrician to
Mercy, Wesley, and Provident Hospitals, and to the Chicago Lying-in Hospital.

(With six illustrations.)

CASE I.—Mrs. F.² Ipara, was referred to me by Dr. P. T. Burns. She was born in Indiana and was called a weakly child in her first years. She learned to walk in her seventh year, for a long time previously having crept around on her left side. She was small for her age and had weak ankles, so that she had to wear braces. She has always noticed something wrong with the right side of her body, the right hip and shoulder being lower than the left. She menstruated at 16 and has been regular. The period of September 18, 1895, was normal, that of October was five days late and small in amount. The patient believed herself pregnant in October. Confinement was expected August 1, 1896. Labor began on that date at two P.M., the pains being few and the intervals long. At midnight the family physician, Dr. Burns, was sent for and he diagnosed a highly contracted pelvis. The next day I was invited to see the case.

Examination.—The patient was small, delicately built, and the narrowness of her hips was especially striking. There was slight scoliosis in the lumbar region, with right convexity. The pelvic measurements were:

¹Read before the Chicago Gynecological Society, May 29, 1901.

²A preliminary report of this case appeared in the *American Gynecological and Obstetrical Journal*, November, 1896. Some corrections were made by later examinations.

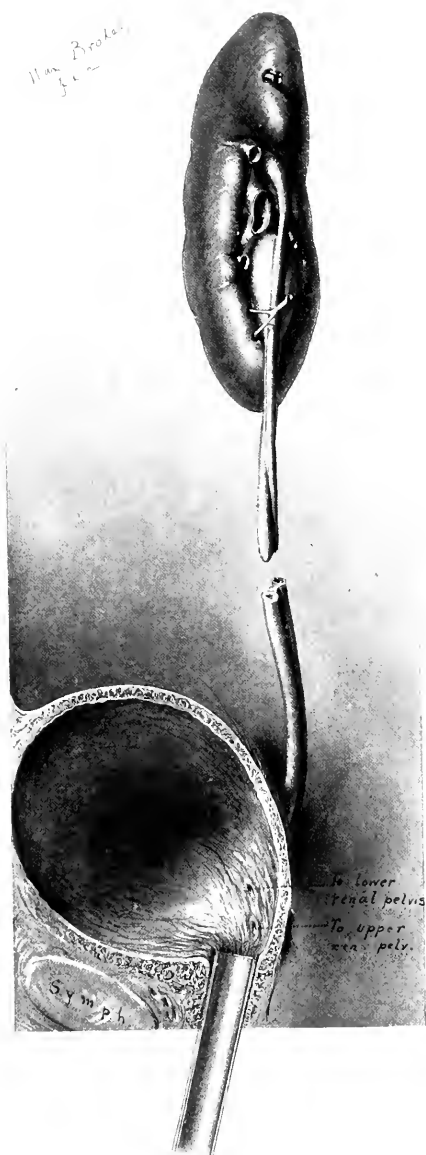


PLATE II.

KIDNEY WITH DOUBLE PELVIS AND DOUBLE URETERS--*Kelly.*

	Centimetres.
Crests.....	22 $\frac{4}{10}$
Spines.....	20 $\frac{7}{10}$
Trochanters.....	26
Baudelocque.....	17 $\frac{1}{10}$
Circumference.....	72
Naegle's oblique, right.....	16
" " left.....	18 $\frac{4}{10}$
Conjugata diagonalis.....	9 $\frac{1}{10}$
Sacro-subpubic.....	11 $\frac{8}{10}$
Bi-ischiatic.....	6 $\frac{2}{10}$
Conjugata vera.....	7 $\frac{1}{4}$ to 8

	Right.	Left.
Pubis to malleoli.....	74	73
Crest of ilium to the floor.....	91	94
Acromion to the floor.....	124 $\frac{1}{2}$	129
Pubis to anterior superior spine.....	14 $\frac{1}{2}$	15 $\frac{3}{4}$
Pubis, around to posterior superior spine.....	31	35 $\frac{1}{2}$
Length of iliac crest.....	17	20
Trochanter to crest.....	10	12
Anterior superior spine to opposite crest.....	21 $\frac{1}{4}$	28 $\frac{3}{4}$
Posterior superior spine to middle line.....	4.7	3
Height of patient, 5 ft. 1 in. Weight of patient, 109 lbs.		

In palpating the whole pelvis the idea obtained is that it is small and twisted from left to right. Further, the right side is generally smaller than the left. The rhomboid of Michaelis is irregular and the posterior spine of the left side is prominent, while that of the right is deep in the tissues, hardly to be felt, due, probably, to twisting of the sacrum (see Fig. 1). This could not be confirmed by internal examination because of the rigidity of the soft parts. The sacrum is rather straight, but the end of the coccyx curves sharply inward (see Fig. 2). The right shoulder droops very much, and the right ribs are curved backward and outward, there being marked scoliosis; the right hip is more prominent than the left, and the right buttock hangs lower. Anteriorly the vulva is displaced about an inch to the left of the median line and looks forward and upward more than normal. The symphysis pubis is high, is displaced to the right side (see Fig. 3), and presents somewhat of a beak which can be grasped by the fingers on either side and is similar to that observed in osteomalacic pelvis. The horizontal ramus of the pubes on the right side runs straight backward, that on the left describes the usual course. The crest of the ilium on the right side is straight, on the left the normal curve is retained.

Centimetres.

Crests.....	22 $\frac{4}{10}$
Spines.....	20 $\frac{7}{10}$
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	Right.	Left.
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Height of patient, 5 ft. 1 in. Weight of patient, 109 lbs.		

In palpating the whole pelvis the idea obtained is that it is small and twisted from left to right. Further, the right side is generally smaller than the left. The rhomboid of Michaelis is irregular and the posterior spine of the left side is prominent, while that of the right is deep in the tissues, hardly to be felt, due, probably, to twisting of the sacrum (see Fig. 1). This could not be confirmed by internal examination because of the rigidity of the soft parts. The sacrum is rather straight, but the end of the coccyx curves sharply inward (see Fig. 2). The right shoulder droops very much, and the right ribs are curved backward and outward, there being marked scoliosis; the right hip is more prominent than the left, and the right buttock hangs lower. Anteriorly the vulva is displaced about an inch to the left of the median line and looks forward and upward more than normal. The symphysis pubis is high, is displaced to the right side (see Fig. 3), and presents somewhat of a beak which can be grasped by the fingers on either side and is similar to that observed in osteomalacic pelvises. The horizontal ramus of the pubes on the right side runs straight backward, that on the left describes the usual course. The crest of the ilium on the right side is straight, on the left the normal curve is retained.

Vaginally, the perineum is tight, the vagina long-drawn-up; the pelvis is small, the sides being within easy reach of one finger. The linea innominata can be felt all the way around, and the inlet is asymmetrical, the right side being flatter than the left. The sacrum is flat from side to side, and from above downward. There is a false promontory. The rima vulvæ is not midway

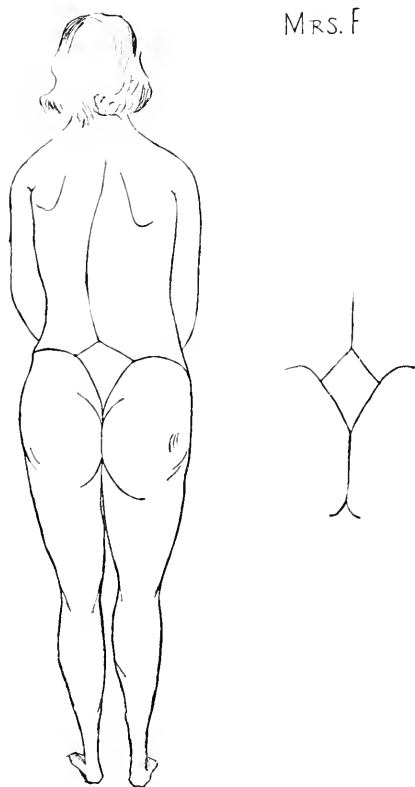


FIG. 1.

These lines were drawn on the patient and then the sketch made. To the right is placed, for comparison, the rhomboid of Michaelis, drawn from a picture of the Capitoline Venus. The scoliosis, drooping shoulder, and distortion of the pelvic girdle are apparent.

between the tuberosities of the ischia, but nearer the left side. Aside from the flattening of the sacrum there was no indication of rickets.

The child lay occipito-dextra posterior, and the head was distinctly visible and palpable as a tumor above the pubes, and when pressed down upon the inlet projected fully half an inch anterior to the symphysis. It was thus easy to put one branch

of the pelvimeter on the head directly and get the intranterine length of the fetus, which was 53 centimetres. The oblique diameter of the fetal head measured 11.5 centimetres. These results were obtained easily and uniformly and were used in the diagnosis. The cervix was effaced, the os admitted two fingers, the bag of waters intact.

Diagnosis.—A pelvis contracted in all of its diameters and with the right side uniformly smaller than the left, making an asymmetrical inlet, probably obliquely oval. The pelvis is of

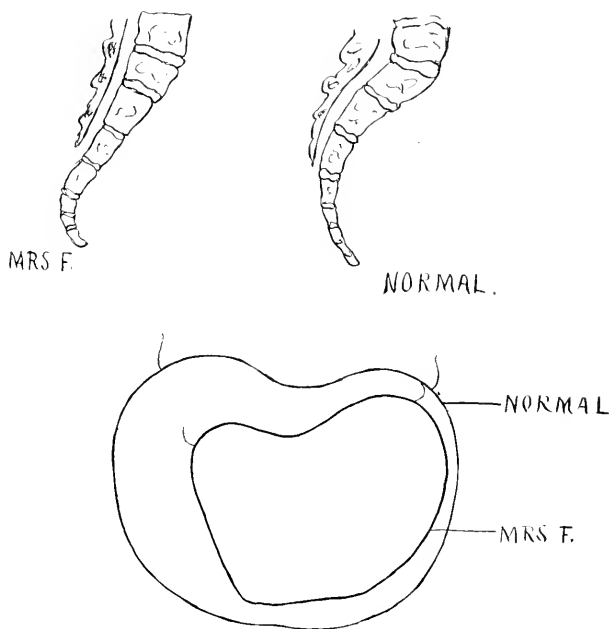


FIG. 2.

the class of generally irregularly contracted pelves, or is a Naegele pelvis. In the absence of positive signs of rickets the latter assumption appeals more strongly. The true conjugate could be estimated between $7\frac{3}{4}$ and 8, but the available conjugate must have been less than this. The child was at full term and larger than normal. It was evident that the spacial disproportion was such that a living child could not be brought through the inlet (see Fig. 4).

After a careful consideration of all the findings it was decided to propose Cesarean section to the patient, and the case

was laid before her in a totally impartial manner. She and her husband selected the operation guaranteeing the life of the child, and the patient was removed to Wesley Hospital, where, assisted by Drs. F. X. Walls and I. A. Abt, in the presence of Drs. Burns, Van Hook, Byrne, and Van Velsor, the classical Cesarean section was performed. There were no unusual complications. The median anterior incision in the uterus was made.

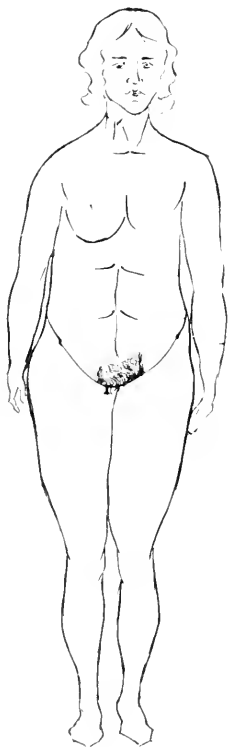


FIG. 3.



FIG. 4.

Note the position of the crests of the ilii; also the pubis (1) to the right of the median line. The pubic hair has a remarkable distribution.

Silk was the suture material used. No drainage. The subsequent course of the case was uneventful. Mother and child left the hospital on the twenty-fourth day and are still alive.

CASE II.—Mrs. H., IIpara, Russian Jewess, aged 24. First labor, January, 1899, in the service of the Chicago Lying in Hospital Dispensary. Patient was in labor thirty hours. The head would not engage after severe uterine action. Pelvic measure-

ments: spines, 27.5; crests, 28; bitrochanteric, 30; Baude-locque, 17.5; conjugata diagonalis, 10.1; bi-ischiatic, 5.5; exostosis on the posterior surface of the pubes, 0.5 centimetre high; conjugata vera, 7.5 to 8 centimetres. Lateral diameters decidedly contracted.

Diagnosis.—Generally contracted flat rachitic pelvis, L. O. A., but marked posterior parietal bone presentation.

Patient was removed to Wesley Hospital for symphyseotomy. It was intended to apply the axis-traction forceps as a trial instrument, and open the pubic joint if that failed. Just before operating, the fetal heart tones were found to have disappeared and there was external hemorrhage. Upon learning this our enthusiasm for the graver operation cooled considerably. The hand inserted into the uterus found the child's heart beating faintly, 96 per minute, and irregular. Nevertheless the instrument was applied, but a thorough trial soon showed that the resistance was insuperable to the forceps. After a hasty consultation with Dr. Eliza Root, who kindly assisted me, craniotomy was performed. The vagina and the vulva were so small and rigid that the hand could not be passed to guide the instrument, wherefore an episiotomy was performed, which bled so freely and persistently that it had to be sutured immediately, which was done at right angles to the cut, thus allowing the necessary enlargement of the introitus. The extraction of the perforated and reduced head was so difficult and laborious that we feared we would have to open the pubes after all; but it was finally accomplished, as was also the delivery of the trunk, after section of the clavicles and resection of several ribs. The operation required one and three-quarter hours. The patient was considerably shocked, but made a very satisfactory recovery. The child was a male, 55 centimetres long, weight 7 pounds, without brain, blood, and meconium. Cranial bones markedly ossified. The patient was instructed to return in the next pregnancy for Cesarean section.

The patient soon became pregnant again and entered the Chicago Lying-in Hospital a few weeks before her labor was expected. The 11th of April was set for the operation, the patient expecting the birth on the 15th. On the afternoon of the 8th, while taking careful measurements with a view to this history, the patient was found in labor. She insisted upon the conservative Cesarean section, without sterilization, as also did her husband. The operation was performed at seven in the evening.

assisted by Dr. C. B. Reed and Dr. D. F. Monash, and in the presence of Drs. F. B. Earle, Eliza Root, Acres, and several medical students.

The uterus was delivered through the abdominal incision, which was temporarily united behind it. The assistant's hand grasped the lower uterine segment, and the Fritsch transverse fundal incision was made, through which the child half-delivered itself, the uterus tearing easily. Hemorrhage was easily controlled. The placenta came by inverted Credé expression. Silk was used in sewing up the uterus, through-and-through interrupted sutures to the decidua, then a silk peritoneal suture. The abdomen was closed, likewise using silk; for skin and fat, silkworm gut. The operation lasted fifty-two minutes, the patient leaving the table in good condition, but with a pulse of 132. The child was apneic, but was revived without difficulty. The puerperium was undisturbed. There was primary union throughout. The child, a healthy girl, weighed 7 pounds and 7 ounces. Its measurements were: length, 48; biparietal, 9; bi-temporal, 7.5; suboccipito-bregmatic, 10; occipito-frontal, 11.5; occipito-mental, 12.5; shoulders, 10; circumferences of head, 33.5 and 34.75.

CASE III.—Mrs. S., IVpara, aged 37, Catholic. The first labor was terminated by forceps. The second and third were normal. The patient had been treated by a local gynecologist for some womb trouble, the nature of which was obscure. She knew of no tumor in the pelvis. Labor was overdue nine days. The bag of waters ruptured May 4, 1900, in the morning, but the pains did not begin until the 5th, being at first weak and irregular, but after noon strong and regular. The writer was summoned about midnight.

The patient was actively in the second stage of labor, with pains every three minutes and severe. Pulse 80, temperature 99°. The uterine tumor was oblique from left above to right below (see Fig. 5). The child lay right sacro-anterior with the head near the spleen, the buttocks riding in the right iliac fossa, being lifted up by something from below. Heart tones to the left and above navel, 166 per minute, and there was a peculiar splitting of the second sound. The right round ligament was easy to palpate from the side of the uterus, but the left could be felt only with difficulty, it was so deep in the flank.

The patient was anesthetized for the second time, having been thus examined previously, and a careful bimanual made. The

cause of the trouble was readily perceived—a hard tumor blocking up the pelvis for two-thirds of its capacity.



FIG. 5.

The bony pelvis appeared roomy, but the soft parts were much distorted by the tumor, which seemed to spring from the left sacro-iliac joint. Below, the tumor reached to a little below

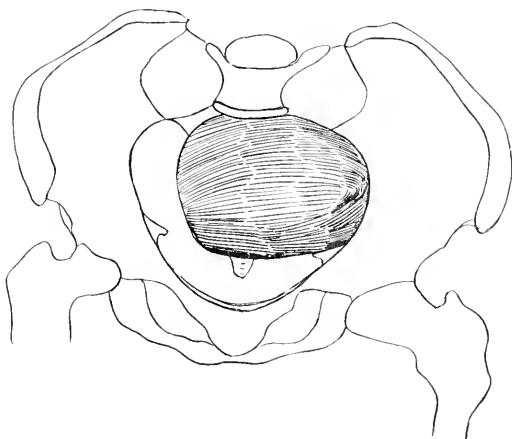


FIG. 6.

the level of the ischiatic spines. Above, four fingers could not reach its limit. It extended to within one and one-half inches

of the right side of the pelvis and anteriorly to within two inches of the posterior surface of the pubes (see Fig. 6). This could be easily and accurately measured with the fingers and was confirmed later by Dr. W. E. Schroeder. The consistence of the tumor was hard, like a fibroma, below; at upper part soft, somewhat cystic. The surface underneath was irregular, with protuberances and depressions that could be confused with the fontanelles of a head. The tumor was just movable enough to show that it was not part of the bone, appearing to be a neoplasm springing from the sacro-iliac joint or its periosteum. The rectum was pushed to the right in front of the right sacro-iliac joint; the cervix was raised and flattened out between the tumor and the posterior surface of the pubis. The os was dilated and soft, and the breech could be felt high above the tumor, riding in the right iliac fossa.

The condition of the woman demanded delivery, but the course to pursue lay not so clear. The pathology of the tumor was doubtful. Ovarian cyst, dermoid, or neoplasm arising in the pelvic connective tissue, were considered. Uterine fibroid was easily eliminated. The diagnosis made was neoplasm, probably sarcoma, springing from the neighborhood of the left sacro-iliac joint, occluding the pelvis so as to give the absolute indication for Cesarean section. The child was estimated to weigh 7 pounds; the head was large and hard.

Extraction and craniotomy of the after-coming head was inadvisable; but even if there had been enough room for this, the operation perhaps would have been impossible because the head was so high, and dragging it forcibly through might have ruptured the tumor, tearing it from its attachments, producing hemorrhage or subsequent necrosis.

Three attempts at taxis, of which the writer made one, all under chloroform, had failed, as could have been foreseen. The tumor was solid, not cystic, except possibly at its highest part, so that puncture was not practicable.

It was determined to perform the Porro operation with intra-peritoneal treatment of the stump. The patient was removed to Provident Hospital, where, assisted by Dr. W. E. Schroeder, and in the presence of Drs. McGowan, Galloway, and Harpole, the operation was performed.

Chloroform was administered (this the third time in ten hours), and, after the usual preparations, the abdomen opened. The tumor proved to be an almost solid neoplasm of the ovary,

incarcerated and adherent in the small pelvis. The idea of the amputation of the uterus had to be given up, because the tumor would have to be removed also, and this was apparently impossible, and furthermore the discouraging condition of the patient forbade any extensive operation. The uterus was rapidly opened by the anterior median incision, the child extracted by the head, the placenta removed, and the interior of the uterus swabbed with lysol solution. Three rows of sutures were put in the uterus, the abdomen closed without drainage. The operation lasted one hour. The child, a female, weighing $7\frac{1}{4}$ pounds, was slightly apneic, but revived promptly. The head was large and well ossified. The patient had subnormal temperature and was cyanotic for twelve hours after the operation, and began to rally from the shock only after thirty-six hours; but in the meantime temperature, pulse, and respiration rose steadily, the pulse going to 140, respiration to 30. Symptoms of peritonitis appeared, hiccough, vomiting, tympanites, constant pain in the abdomen, fever; through all, signs of exhaustion were marked, and the patient succumbed on the fourth day. The child died in three months from enteritis.

The writer performed part of a fourth Cesarean section, a year or so ago, where the indication lay in a flat rachitic pelvis of 7 centimetres. The patient had been in labor sixty hours, and, though the child was in prime condition and the patient not infected, the writer, because of the long labor, advised against Cesarean section. The patient being a Catholic, a priest was summoned, who insisted upon Cesarean section and overruled the patient herself. Nothing could be done but the graver procedure, and the patient died on the third day, never rallying from the operation. The child lived.

This case made a strong impression on my mind, for I am certain craniotomy would have saved the patient.

I have been able to read in these lines, first of all, inexperience writers, whose names are mostly new to the journals, in which, often after a description of a successful Cesarean section or symphyseotomy, the statement is made that craniotomy on the living child ought to be abolished, that its performance is no longer justifiable.

I have been able to read in these lines, first of all, inexperience and from it bold generalization, a substratum of religious bias in spite of the authors' declarations to the contrary, and, finally,

selfishness, *i.e.*, unwillingness to sacrifice one's own sensibilities to further the ultimate good of the patient and family.

No one regrets more keenly than I do that craniotomy on the living child has not long ago become obsolete and abandoned. The statements of a few writers have, however, tended to create the opinion that such is really the case, and also to foster a sentiment that the operation is one to be ashamed of. One physician said: "Do it, but don't publish it." Another said that he would not do it himself, but would get some one to do it; and still others will make herculean attempts to deliver the fetus dead but withal whole.

It therefore appears to the writer that the time is urgent for a review of the subject, to see exactly where the profession stands. Are our advances in obstetric technique brought so far as to relegate a time-honored, life-saving operation to lasting oblivion, or is it to be retained as an ultimate resource in cases where the life and the health of the mother are actually endangered?

This paper, therefore, will not discuss craniotomy with reference to the induction of premature labor, except that we may refer to the latter operation as one that may be held out as a hope for subsequent pregnancy. It will not discuss symphysectomy, the writer holding that this may be placed in the same category with Cesarean section, that is, of operations dangerous to the mother for the sake of the child.

Nor will it discuss craniotomy on the dead child. The writer believes that craniotomy and allied operations ought to take the place of every other operation aiming to deliver a dead infant. In a paper read before the Illinois State Medical Society six years ago this position was taken, and experience since has only served to strengthen it.

Nor shall I attempt to compare craniotomy with prophylactic version or the high forceps, holding that these operations, where they are at all possible, should precede even the thought of a craniotomy. The latter does not come into competition with them as primary operations.

In pelvis where the conjugata vera is 6 to 6.5 centimetres,¹ or where the child is so large that these measurements practically

¹Barnes (Obstetric Medicine and Surgery, 1885, p. 856) says the limit is 4 centimetres (1½ inches), and that the argument of those who insist on a higher limit is subjective, meaning that their figures show the limit of their skill.

obtain, Cesarean section is the only procedure, the indication being absolute.

In cases where the pelvis is so ample or the child of such size that it is reasonable to hope, through a masterly expectancy, for a spontaneous labor, or for successful operative interference by the natural passages, Cesarean section does not come up as an elective, but high forceps and version are to be considered. After version has been done and extraction fails, the child is dead, so that craniotomy is the only course. When the high forceps has failed, one is confronted with the alternatives, craniotomy, Cesarean section, and symphyseotomy, and it is these cases that form the basis of contention in this paper.

Craniotomy and its allied operations may be considered in many lights—their religious, moral, sentimental, humanitarian, sociologic, legal, and scientific.

Religious Aspects.—The stand taken so firmly by Catholics is well known and understood. The Sixth Commandment shall not be violated; mother and child should have equal chances; the mother even should be willing to "give a life for a life." This principle is not seldom carried too far and the mother wantonly sacrificed without hope, even, of saving the child. This statement I can support with cases from my own experience.

Since argument is reasoning from demonstrable facts, it is impossible to argue on a matter of faith. Therefore it is bootless to discuss this question with any one of strong religious feeling. One simply must allow great latitude of opinion here as in any field of spiritual belief. All religions except the Catholic permit the operation of embryotomy in appropriate cases. The Jews, to whom the Commandments were given, permit the violation of the sixth on the ground that "the tree should be spared, as it can bring forth more fruit in the future." The Episcopalians take a similar view. The Methodists recognize the importance of preserving the mother's life in the face of danger to both.

Morally, have we the right to take human life, even if it is to save another? "Ought and ought not are ethical atoms," and ethics is founded on a system of reason. Duty expresses man's relation to his neighbor and to his community, and often reason dictates that he sacrifice himself for the benefit of one or more of the society in which he moves. The community forbids suicide, yet quite recently a man allowed himself to be scalded to death to save his fellow-workman—"Go first," he said; "you are married." The world applauds this action and accords that igno-

rant negro a place beside the heroes of its history. Those few words clear up this side of the question under consideration. We may allow the mother's interest to be the first. She is a member of society, of more importance to it than an unborn child.

But would the child, if it had powers of reason, take this view of the matter? Perhaps it would: but since it has no power of reason, may we not, morally, judge for it?

The ideas of right and wrong, of "ought and ought not," are, to an independent thinker, founded on reason, but they are not seldom spontaneous feelings, the result of training in childhood, often of a religious nature. Thus a grown mother will sometimes abhor any operation on her child, preferring risk and even death to the thought of selfishly sparing herself. It may be that the rights of the husband and of the whole family are thus overshadowed. Feeling not governed by reason is a very unsafe guide to action.

I believe that there is a moral right in the sacrifice of one individual for another, for a family, for a community. This moral right has been recognized since the time of Cicero, who enunciated it clearly.

Sentiment.—The decision may sometimes be made on sentimental grounds. The maternal instinct is so strong in some women that it almost amounts to a craze. To my mind this very often is exaggerated sentimentalism, from which the patient ought in a measure to be protected. The mother may feel that the thought of living through the sacrifice of her offspring would in after-years be unbearable, and may be too unselfish to countenance such a sacrifice. On the other hand, the thought of a child, motherless, thrown on the mercy of a family which perhaps bears resentment for its being the cause of the parent's death, deprived of the nourishment and care that only its mother can give, to grow up with the knowledge that through it its creator perished—these thoughts may cause more hesitation on her part.

This part of the question may with propriety be left to the mother, but its weight must be duly appraised by the father and the medical adviser. The feelings of the husband and father must also be consulted. On this point I have the opinions of many men, rich and poor, educated and ignorant, professional and laymen, Protestant, Catholic, and Jew. The replies are all identical—"save both if you can, but preserve the wife." The

desire for offspring was strong in these men, but the love of the wife outweighed this.

Believing that the doctors would be able to give opinions of weight on this point, I have, in the last six years, systematically investigated their feelings. Among the women physicians and nurses there is unanimity—no Cesarean section; and the men will hesitate to allow an abdominal delivery even when I say that its mortality equals simple ovariectomy. The majority of the doctors would not allow Cesarean section under any circumstances, except the indication of absolute spacial disproportion.

The operation provokes a feeling of abhorrence in all concerned, particularly in the operator, and this revulsion of sentiment may deter an accoucheur from its performance, especially if he be a Catholic.

The man who would shrink from what he thinks is scientifically indicated is selfish to the last degree. The sacrifice of one's comfort, of time and feelings, is gladly made by the conscientious obstetrician. Sentiment in an operator should have no weight, either for or against, in the discussion of this subject.

The Humanitarian Side of the Question.—The Golden Rule is an exposition of the teachings of the Greatest of humanitarians. If all the accoucheurs would apply it here the number of Cesarean sections would diminish rapidly.

But not all patients wish to be treated as you would wish to be treated yourself. However that may be, should the desire to do an unusual operation or to shine before the eyes of one's colleagues ever arise in the breast of the obstetrician, a sturdy adherence to the Golden Rule will abolish such desire at once. I will not say that Cesarean sections are often done in response to these two impulses.

It has occurred to me, and doubtless also to many of you, that the patient's family has besought you to save the mother, regardless of everything else. In the face of this would it not require a surety of the recovery of the mother for the performance of the cutting operation? Can one refuse to meet the earnest desires of relatives bound to the patient by ties whose strength we can only feel by remembering the love our kith and kin have for us?

What would you do if it were your own wife? Must you not accord, from this standpoint, the right to the family to dictate what your course shall be?

Sociologically.—Immediately on coming into this part of the field one discerns that thought may proceed along three different

lines. In general, all moral questions are social, because questions of morals relate to society.

1. Has the mother, or the husband, or any one the right to order the sacrifice of the child to improve the chances of recovery of the mother? This question centuries ago could be answered more easily, because then the mortality of Cesarean section was almost one hundred per cent; but now the mortality from Cesarean section is comparatively low. If the case has been neglected, the conditions obtaining centuries ago obtain now, and the dictum accepted then, "Save the mother," ought still to have weight now.

What is the duty of a married couple to society? Are they, as Von Lesser denies, "population machines"? I believe all will admit that there is little, if any, compunction upon their having children. Aside from religious admonitions to multiply and plenish the earth, most people feel that they may exert their own will regarding a family.

After a child is conceived, however, the case takes on a different aspect. A new being is present, which, though unborn, has still some claims for its life.

But has not a woman some rights when her life and health are concerned? If a woman willingly consents to "bear children to the state" (Plato), should she be obliged to jeopardize her life in so doing? Should this be an exception to the first law of nature?

If a new-born child were caught in a raging torrent, would society demand that a man on the shore risk his life to save it? It would applaud the spontaneous action if successful, but deplore the result if not.

The society that would demand such a sacrifice from the woman must also demand that abortion be not performed for the uncontrollable vomiting of pregnancy, for acute and chronic Bright's disease, for chorea gravidarum, etc.

If society looks toward the increase of its numbers, the best way is to permit craniotomy on this child and perform premature labor in the subsequent pregnancies.¹

Though some women conceive after Cesarean section, many, perhaps the majority, do not (Jaggard), whereas the patient can have one premature labor after another; so while society will

¹ Ahlfeld (*Cent. f. Gyn.*, 1901, S. 538) shows that 90 per cent of children delivered by premature labor survive the "dangerous" first year.

countenance the destruction of the infant the first time, it ought not to allow the sacrifice of successive children.

The woman has no right to procreate infants that she cannot deliver. If she does persist in doing so, premature labor should be induced or the Cesarean section performed at term.

2. Is the child's value less than that of the mother, and shall we recognize this? In considering this the following facts may be considered:

(a) Statistics show that 25 per cent of the children born die before they are 5 years old and 35 per cent before they are 30 years old. Therefore, when balancing the actual value of two individuals, we must compare them at the same age.

The opponents of craniotomy are fond of saying that its mortality is necessarily 100 per cent and that of Cesarean section 0 per cent; but the number of children lost during and after Cesarean section is not small, and, as was said, 35 per cent die before the age of 30, the time at which their lives should rightly come into competition with that of the mother. If the mother is lost it is reasonable to say that more than 50 per cent will never reach the age of 30 years.

(b) There is a possibility of the child being a monster, an idiot, or deformed. In Prague a Cesarean section delivered an anencephalic monster. Imagine the chagrin of the operator!

Are the children of women in whom this question arises desirable members of society? This and the following questions I simply pose. I do not attempt to answer them, nor do I ever allow them to sway my judgment when brought face to face with a concrete case and am required to decide.

What would you do if the child were illegitimate? If the conditions were evenly balanced would this sway the decision from Cesarean section? Recently a Cesarean section was done on such a case in Chicago; all the opinions I heard were condemnatory, though both patients lived. Freund,¹ of Strassburg, says, "No." In Vienna the operation is done according to what the physician thinks, the patient not being asked.² If one does a craniotomy under these circumstances he comes into disagreeable proximity to the criminal abortionist.

What would you do if the patient were a dwarf, mentally as well as physically, or if she come from the criminal classes? Is

¹Personal communication by Dr. Ries, of this city.

²Schauta: *Op. Geburtshülfe*, 1892, S. 260.

it to society's ultimate good to perpetuate and increase a race of degenerates? Would the dictates of utilitarianism outweigh those of religion, of morals, of sentiment, if the latter were leagued against it?

Would the fact that the parents were abjectly poor cut any figure in the question? What if the family were rich—a successor to a crown being concerned? When Napoleon was asked by Dubois regarding the lingering labor of the Empress Marie Louise, he answered: "Treat the empress as you would treat a shopkeeper's wife in the Rue St. Denis; but if one must be sacrificed, save the mother."¹

As I said, I do not attempt to decide these questions, I simply pose them. To my mind the physician has nothing to do with them; to him one life is as good as another, even if one of them is that of a condemned murderer. But the husband, the family, and the community must take them into consideration. Whether they have the right to decide them or not I leave to the moralists.

Experience has shown that the more intelligent elect craniotomy, in the anticipation of inducing premature labor in the next pregnancy. Busey,² who has fought consistently for the abolishment of craniotomy on the living, says that the life of the child is pitted against that of a woman who cannot give birth through natural passages, and therefore infers that her life is not equal to that of a healthy woman.

Which has more social value, an individual, unborn, with a necessary mortality of 35 per cent, not certainly perfect, with unknown latencies, without any social ties, relatively weak family ties, and no responsibilities; or a fully developed individual, with no mortality, perfect as far as all other relations to society, except the propagative, is concerned, with known potencies, with many social ties and many responsibilities, especially if the patient is the mother of several children?

3. Is the physician obligated to obtain permission to perform the operation? In England and in the United States he is legally, and I think he has no moral right to expose the mother to danger without her consent; and if she is unconscious or of unsound mind, he must get the consent of her representative, her husband, or her nearest kin. If it come to a division of opinion,

¹O'Meara: *A Voice from St. Helena*, 1822. Quoted by Ramsbotham, *System of Obstetrics*, 1865.

²Annual Address before the Washington Obstetrical Society, Oct. 3, 1882. *AMERICAN JOURNAL OF OBSTETRICS*, 1884, No. 2.

the mother desiring a child, the father wishing to preserve the wife, the husband's word, in my opinion, ought to be the governing one.

Pinard¹ says simply: "It is necessary to help you." Freund says "permission must be gotten," as also does Ahlfeld.² It has been claimed that nowhere else does the doctor consult his patient as to the kind of operation he may perform; but this is not so, and here it is particularly untrue. A decision of this kind differs from the ordinary surgical case in that it rests on other than scientific grounds alone.

The Legal Side of the Question.—The old Roman law is still recognized, that the child is *pars viscerum*, an integral part of its mother. This was recently reaffirmed in our State in the case of *Allaire vs. St. Luke's Hospital* (184 Ill.), where the next friend of a child that had been injured while *in utero* brought suit in behalf of the child against the institution in which the injury was inflicted. It was held that no action would lie. The court said: "That a child before birth is in fact a part of the mother and is only severed from her at birth, cannot, we think, be successfully disputed." On this principle, I take it, the law would hold that the woman has the right to say what shall be done with a child when her life is endangered by it, as if it were a neoplasm, and from the same viewpoint the law countenances therapeutic abortion (see the Criminal Code of Illinois—title, Abortion).

Furthermore, if a physician would perform a Cesarean section when, considering only the life of the mother, a craniotomy is the safer, without having obtained the permission of the patient or her representative, of sound mind, the patient or her administrator might, in an untoward event, hold the physician for malpractice, since, the child being only part of its mother, legally the duty of the obstetrician is to save the mother.³

It is thus developed that the mother has the right to preserve herself at the expense of the infant, and that a woman may morally, sociologically, and legally refuse even to incur a little danger for the sake of her infant.

The physician, therefore, is bounden to abide by her decision or that of her representative, and it is his duty to disclose the situation fully and impartially. The infanticide then is practi-

¹Quoted by Fleurent, *Centralblatt f. Gyn.*, 1901, No. 17, S. 438.

²Ahlfeld, *Geburtshülfe*, S. 543.

³For the legal consideration of the question I am indebted to Messrs. Julius & Lessing Rosenthal and W. P. Thornton, of Chicago.

cally done by the family; but if the physician dislikes to be the instrument in their hands, he is at liberty to retire from the case, providing the patient have sufficient opportunity, without jeopardy, to retain another qualified practitioner.¹

In the foregoing I have tried to discuss the subject impartially and from the standpoint of a layman. I have, therefore, allowed various side lights—religion, personality, love of wife, love of self, moral considerations, sociologic, etc.—to have their full weight for and against. I have avoided the medical or scientific side of the question.

On these broad lines—and you will admit that I have made them so—I believe that the conclusion is inevitable that, when certain conditions arise, the destruction of the human fetus is justifiable for the sake of its mother.

The Medical Side.—There is no doubt that the operation of embryotomy has been repulsive to the medical profession since its first practice, and it has grown more so with the enlightenment of years. This abhorrence extended often to the mutilation of the dead fetus and many cruelly forcible deliveries were perpetrated to avoid this. Of course the women suffered, often, too, lost their lives. Even nowadays physicians will perform most strenuous forceps operations or arduous versions and extractions and will succeed in delivering a whole but dead fetus. True, they have avoided craniotomy, but the women are all losers. The wounds, if not immediately fatal, they will carry to their graves. These cases are sorry successes. They are identical with craniotomy plus the injuries which the latter avoids. Then, too, some men have advocated waiting till the fetus is dead and then to perforate the head—an unjustifiable exposure of the woman to danger, and a cowardly shirking of responsibility.

Nowadays the substitute operations have grown so safe that the question is in order, Is the mutilating procedure ever justifiable from a medical standpoint?

Pinard, as is well known, makes the sweeping assertion that craniotomy on the living child should be abolished and the Cesarean section and symphysectomy be substituted.

Schauta² says that although the Cesarean section may give glittering results, craniotomy never will be discarded.

¹See case *Lathrop vs. Flood*, Supreme Court of Calif., S. F. 1703, Feb. 20, 1901. Unwarranted abandonment of a confinement case. Damages granted, \$2,000.

²*Op. Geburtshülfe*, 1891, second edition.

Hirst¹ says: "To condemn this operation unreservedly and without exception is a mistake."

Schröder² says "that the obstetrician who accepts the indications for craniotomy early will save all the mothers, while he who denies the justification for the operation till the last will lose one mother after the other and will hardly get one living child for them."

E. P. Davis³ says "craniotomy is justifiable if the doctor cannot get assistance to do Cesarean section and where the child has been injured with forceps and the mother infected."

Hunter Robb⁴ agrees with Zweifel that Cesarean section is to be preferred when the child is living, but he admits that craniotomy ought sometimes to be done.

Ahlfeld⁵ says that the mother will always select craniotomy, and therefore the doctor has seldom the duty to judge. The mother, according to this, does the craniotomy, not the doctor.

Cameron⁶ takes, in my opinion, the most rational view of the situation. He says that at present it is "rash and premature to say that embryotomy is never justifiable"; that Cesarean section and embryotomy are seldom pitted against each other as electives, but that, when they are, Cesarean section is generally the choice; when they are the last resorts, embryotomy is usually the choice.

In the first place, I wish to place at the head of these deliberations the statement that craniotomy is now an operation with a mortality of 0.7. The patient may die from the effects of the operation performed where Cesarean section should have been done from the absolute indications, or she may die of sepsis or from injuries inflicted by attempts with the forceps or version; but a properly performed craniotomy is as devoid of danger as a normal labor, and where it is likely to be fatal a symphysectomy would be much more so and the Cesarean section absolutely fatal.

The question is not so complicated as it formerly was. Later writers, Reynolds, Hirst, Boyd, and others, have shown that the

¹Hirst: Text Book of Obstetrics, p. 767.

²Schröder: Geburtshilfe, twelfth edition, S. 389.

³E. P. Davis: Jewett's Obstetrics, p. 720.

⁴Robb: Ibid.

⁵Ahlfeld: Lehrb. der Geburtsh., second edition, S. 523.

⁶Cameron: American Text Book of Obstetrics, p. 926.

⁷Cf. Bretschneider, Cent. f. Gyn., 1901, S. 649—one hundred and thirty-two operations with no deaths due to them.

mortality of Cesarean section early in labor, before many examinations and any operations have been attempted, is very low, about that of simple ovariectomy. It must be remembered that these are carefully selected cases. Under these circumstances, in the presence of the relative indication, a physician must recommend the Cesarean section as the elective, but he will be bounden to abide by the family's decision. The facts must be laid plainly before them, unvarnished. Should permission for Cesarean section not be granted, the following courses are open to him. He may never do a craniotomy, even when he thinks it an ultimate necessity, as a primary operation, but he must not pursue any of the courses now to be recommended, to the detriment of his patient:

1. *Expectancy*.—Not seldom the calculations of the obstetric attendant have been entirely upset by Nature, and the child spontaneously born when least expected.

2. *Prophylactic Version*.

3. *The High Forceps*.

Which of these courses must be adopted is not in the scope of this paper. When they fail, craniotomy steps into its right; and let no man wait till the patient is in actual danger, or use forcible means to save himself from the morbid sentimentalism of having destroyed a child. If the child is stillborn or dies in a few days from hemorrhage of the brain, *he has* destroyed it, but in the worst possible manner as far as both are concerned.

When the case, on the doctor's coming, is still further advanced, when the patient has perhaps been examined by many hands and operations already attempted, all writers agree that the mortality of Cesarean section is much higher. Here Cesarean section is out of the question. Many operators¹ refuse to consider it.

Symphiseotomy may be recommended if the other conditions for its operation obtain; but unless the probabilities of sepsis are slight and the injury to the parts moderate, even this must make way for the life-saving craniotomy. Again the family must judge, and again the intelligent high forceps or version must precede craniotomy.

When the patient has been in labor more than twenty-four hours, when she is presumably infected, when operations have been attempted by unskilled hands, Cesarean section and symphiseotomy should be prohibited. This child should be sacri-

¹ Leopold, Zweifel, Schauta, Veit, Reynolds, Cragin, and others.

ficed and premature labor induced in the next pregnancy, or the former operations, under ideal conditions, may then be performed.

After a woman has been in labor for some time her ability to stand abdominal operations is lowered. This is not fully appreciated by the gynecologists and the surgeons, but I am convinced of its truth.

To my mind it is not justifiable to do a Cesarean section from the relative indication, with the idea of extirpating the uterus because of sepsis. This takes the hope of future children away. A craniotomy were better. With the absolute indication, by all means remove the uterus.

I shall not touch on placenta previa, eclampsia, prolapsed cord, premature detachment of the normally implanted placenta, in the light of their forming the latest indications for Cesarean section. Nor shall I dilate on the many conditions which would indicate embryotomy—for example, impacted face presentation, neglected shoulder presentation, stenosis of the cervix, vagina, etc. The general principles I believe I have sufficiently indicated.

The Cesarean section should be performed in those cases where the conditions of patient and environment are prime.

In conclusion, I believe I express the deep feeling of every accoucheur of active practice: Speed the day when there is no longer any reason for doing an embryotomy on the living child!

3632 PRAIRIE AVENUE.

REPEATED PREGNANCY IN THE SAME TUBE: A CASE OF
HOMOTOPIC AND HOMOSITIC REPEATED
TUBAL PREGNANCY.¹

BY

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(With four illustrations)

REPORTS of cases of repeated pregnancy in the same tube are still so few in number that up to the present writing but three undoubted cases have been recorded—Haydon's, 1863; Coe's,

¹ Presented before the Chicago Gynecological Society, May, 1901.

1893; Heinrichius', 1899. This evening I will report the fourth. Though these three were same-sided in repetition, they were not same-sided. The present report will place on record a case of repeated same-sided and same-sided tubal pregnancy—to coin a word, a case of homotopic and homositic repeated tubal pregnancy. It is unique in character. Both pregnancies were recognized before the patient entered the hospital. Her first case holds the record for deliberate diagnosis as to early period of extrauterine gestation; three celiotomies were performed within twenty-one months upon the same patient; following the two celiotomies for the right-sided repeated pregnancies, a third celiotomy was performed for the removal of the cystic degenerated left ovary; the lady, roseate with color, is present this evening, and, as you see, enjoying vigorous health.

CASE I.—The first case was reported by N. J. Haydon¹ in 1863 to the London Obstetrical Society—"two fetuses found in connection with the same tube." The sacs occupied different sites in the right tube. The condition was found post mortem.

CASE II.—The second case was reported by H. C. Coe, of New York, before the American Gynecological Society. Its extrauterine nature was recognized at the operation. His case was the first of its kind reported that recovered. (For further particulars of both cases see Transactions of the American Gynecological Society, 1893.)

CASE III.—The third case was reported by Heinrichius and Kolster. Its nature was recognized post mortem.²

History.—Six years ago Mrs. K. S., aged 33, noticed a gradually increasing, movable, firm tumor in the abdomen. Menstruation had ceased six months; during this time the tumor increased in size; patient thought herself pregnant. Since return of menses the tumor decreased in size until in the autumn of 1896, by which time the tumor had declined to the size of a fist. In the early part of 1897 the tumor commenced to grow again; in April she felt movements therein, which ceased in August, since which time she reports a decline in the size of the abdomen. In May, edema of face and feet. Since June she complains of a severe cough (tubercular) and loss of strength. When entering Helsingfors Clinic, September, 1897, the diagnosis could not be fixed with any certainty. The history suggested a retained dead intranterine fetus, though repeated exam-

¹ See Off. Trans., vol. v., 1863, p. 280.

² Archiv für Gyn., Bd. lviii., 1899, p. 95.

ination failed to find fetal parts: aside from the history a large fibroid was suggested. A smooth, firm tumor could be felt in abdomen, extending from symphysis to midway between umbilicus and xiphoid process and laterally to a finger's breadth of the anterior superior spinous processes. During the repeated examinations undertaken no fetal parts were to be felt, likewise no sounds audible. No light from the use of the Roentgen rays. Diagnosis *in suspensio*. October 10, cervix dilated with laminaria tent and Hegar's sounds to touch with finger: could find no fetal parts. October 13, peritonitis: October 16, exitus lethalis. At the postmortem, opening the tumor (from the left tube) a well-developed fetus of 51 centimetres was found; macroscopically no maceration. Cutting into a boggy second mass alongside the mature fetus, there were found fetal bones and bone fragments, considered remnants of a previous pregnancy.

CASE IV.—History of my case. It is fulsome, yet interesting. Aside from the pregnancies and operations, it shows to what traumatic extremes a gyneccean pelvis may be exposed and still recover.

Mrs. X., 5 feet 4 inches in height, weight 125 pounds, now 28 years of age: physically normal. Childhood and family history without pathological importance. First menstruated at 14 years: three to five days, always regular and painless. Course of first pregnancy normal: normal in position: normal delivery by midwife of eight-pound boy November 21, 1893: second stage two hours: third stage half an hour. Puerperium such that she arose on the seventh day, but from then on to when I first saw her, in July, 1897, there is a history of a pelveo-para-perimetritis. Menstruation irregular, so painful as to be confined to bed: congress painful: on the whole, a dragging existence so far as household duties and comforts are concerned. Not pregnant since first labor.

First Pregnancy and Operation.—Right ampullary tubal pregnancy. In July, 1897, she first came to me. The findings were: uterus enlarged, fixed, and painful when moved: cellulitis less on right side: right ovary not tender: left ovary markedly painful: locally and systemically, the signs of a prolonged pelveo-peritonitis. Locomotion painful and hesitating: exhaustion, anxious pelveo-peritonitic countenance. From July to November office treatment only—as patient lived some five miles from the office—with tampon and douches locally, alteratives and tonics internally. By that time her improvement was so

marked that she could resume her full household duties, locomotion being free and upright; pelvic touch no more painful; menstruation again regular and without pain; restoration of cheerful countenance. About November 20, when one week over time, blood appeared, patient thinking, though late, it was a regular menstruation. Second day after she noticed blood coming every half hour or so, and then clotted, accompanied with uterine pains as in labor. Toward evening she noticed a piece of flesh-like-appearing mass, probably the uterine decidua; no pains directly over ovaries, though sore all over lower abdomen and pelvis. Went to bed; got up again the next morning, when she was able to resume her housework. During the week before the initial metrorrhagia she noticed morning sickness; disgust at the smell of coffee; belching and heartburn after eating breakfast; afternoon and evening could eat regularly without distress; tickling in the breasts; feeling of pelvic fulness and bloating; clothes becoming tight, etc. Until about the 25th of November she flowed as described, and flow would cease for some hours, conveying thought of cessation and being clean, when flow would reappear. Continued thus irregularly without large showing until December 4, when she came to me for advice. Upon examination without anesthesia I found the uterus soft, slightly enlarged, fixed as before, with signs of a slight flow; cervix not open as in an incomplete abortion of ten days' standing; on the right side of the uterus a small, firm tumefaction, not painful upon palpation. Diagnosis, extrauterine pregnancy of a few weeks' standing. Tamponed, gave a sedative, and requested her to return in two days, when I found the tumor still the same and decided on operation rather than longer empiric treatment. I would call attention here to the marked assistance rendered, in the consideration of the diagnosis, by the patient's reply as to morning sickness, vomiting, distaste, etc., her words being: "Doctor, I do not know why it is, but in the morning I feel like vomiting, yet during the day it clears up and in the evening I can eat most ravenously." The statement recurs that not much stress can be laid upon the symptom of early morning sickness, vomiting, etc.

Patient entered the Presbyterian Hospital December 11, 1897; Case No. 19690. Operated on December 15; ether narcosis. Opening the abdomen, quite a typical picture of ruptured tubal pregnancy presented. Hemorrhage was of two kinds: the serum and clots indicated the results of a hemorrhage of several days

before; the bright-red blood, the blood from the existing hemorrhage. The active hemorrhage fortunately did not come from an important artery. The ovum had attached itself to the fimbriated extremity of the right tube. To use a figure, it lay in the fimbriae like an apple in the palm of an outstretched hand. In growing, or through traumatism, the ovum had detached itself only in a part of its circumference; naturally here was repeated a like process to that seen in a partial separation of the membranes from the uterus in an intrauterine pregnancy. In this case hemorrhage occurred more as an oozing than as a flow from the separated surfaces. As a consequence the ovum, still partially attached, became surrounded by a clot; outside of the clot the oozing continued—a process the counterpart of the fleshy mole in intrauterine pregnancy. In reaching down for investigation, the sensation conveyed to the fingers in touching the clot-ovum was just like that received in encountering a piece of adherent placenta in a curette for retention. The sensation was so true that the internes were invited to touch the adherent clot-ovum. No cutting was necessary to remove the clot; simply shelling it off, as in a curette in an incomplete abortion, sufficed to release the clot-ovum. There was nothing else of a pathological nature requiring correction, the tube and ovary appearing not to deserve removal. Therefore the only indication was, to control the oozing from the raw surfaces of the fimbriae. To accomplish this the fimbriae were simply folded over and their borders stitched together by means of a continued catgut suture. It will be well to bear this in mind, for where union with occlusion of the fimbriae was looked for patency persisted, this suture notwithstanding, as will be seen in the account of the subsequent pregnancy. The peritoneum, especially that of the contiguous bowels, was actively hyperemic, suggestive of a threatening peritonitis. The uterus was found firmly bound to the rectum by a thick band of adhesion, this causing the fixation of the uterus mentioned above and its retroflexion. This band was dissected, releasing the retroflexed uterus. In closing, an abdominal hysteropexy was made and abdomen closed as usual. Her condition coming from the operation was bad, respirations shallow, skin cold. For the following seventy-two hours her condition continued critical, demanding repeated salt, whiskey, and strychnia hypodermatics. In truth, were it not for the unusual skill and untiring vigilance shown by my house interne, Dr. J. D. Freeman, and his assistants, I doubt very

much that I should have been able to record this case in so happy a frame. After these three days recovery was slow, yet constant. She was discharged January 22, 1898. Her stay in the hospital was prolonged by slight transitory pleuritis manifesting itself during the third week. At home again, it was only after the third month that she could resume her full household duties; no pelvic discomfort; no scalding urine, so distressful before; menstruation, formerly at times so painful that she was compelled to take to bed and use sedatives, now when menstruation recurred it did so without disagreeable prodromata and without pain, first knowledge being due to signs of blood.

Another interesting feature in this case is that, about four months after she left the hospital, wishing to attend church services, she walked some distance. For some reason the uterus

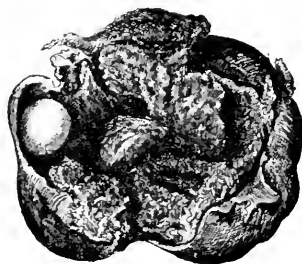


FIG. 1.—Illustration of gestation clot removed at the first operation. Ampullary form of right tubal pregnancy. Clot broken open, showing the gestation sac of about the second or third week. Diameter of ovule in specimen, seven millimetres. Original size.

became liberated from its attachment to the abdominal wall, as a consequence of which a series of symptoms developed, such as vomiting, increased temperature, a one-day's flow from the uterus, bright red in color, not pale as is characteristic of the pseudo-menstruation in extrauterine pregnancy. At a certain point to the left of the uterus I found a tumefaction which suggested the possibility of another extrauterine pregnancy. I mention this feature to show how easy it is at times to think of the presence of another such pregnancy where one has previously occurred. This swelling must have been due to the slight hemorrhage and to the exudate from the irritation incidental to the separation of the uterus from its abdominal attachment. This all cleared up with douches, tampons, and rest.

Second Pregnancy and Operation.—Repeated right ampullary tubal pregnancy. Patient continued well until last regular

menstruation in January, 1899. Toward the end of February she noticed morning sickness, morning loss of appetite, fulness of breasts. A slight flow had shown itself for two days. Though alarmed, since she continued to feel well she grew easier. Continued her household duties as usual. March 25 she went down one flight of steps to carry up coal. She is of quite strong muscles. Shovelling two coal buckets full, no discom-

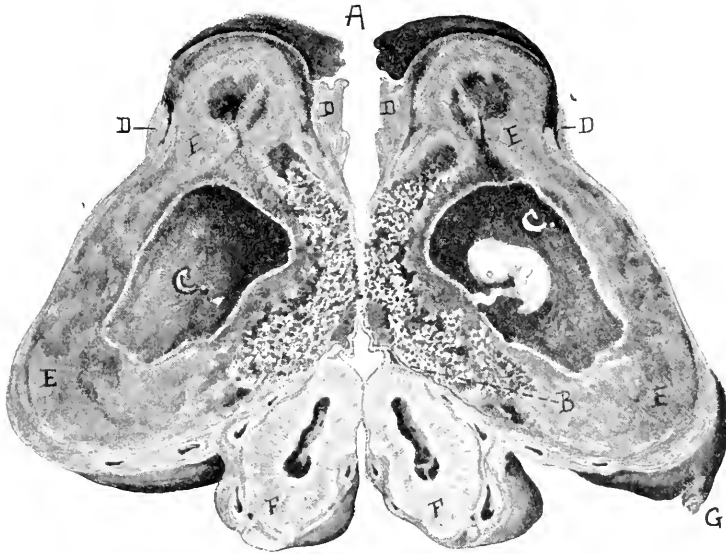


FIG. 2.—A, mass made up of right tube and ovary, removed at second operation. Originally a repeated ampullary form of right tubal pregnancy; now tubo-ovarian. B, the thinned wall of the fimbriated portion only, separating the placenta from contact with the ovary. There is no direct connection between the blood supply of the two ovaro-tubo-placental circulations. C, gestation sac showing placenta, fetus, and cord of about the sixth to eighth week. D, site of rupture of the fimbriae, showing clot (E) plugging opening, thus checking free, active hemorrhage. Fetus and cord macerated, undergoing absorption. F, ovary shows a still fresh corpus luteum, which furnished the ovule for the second pregnancy. G, resected tube. Original size.

fort followed. But in lifting the two buckets at once, intending to carry them up at the same time, she was suddenly seized with a sharp, lancinating pain in the right side, dizziness and vertigo, but did not fall. She waited a moment to recover, supporting her sides with her hands as though to prevent something from falling through the pelvic floor. After a few moments she had recovered to such an extent that she carried up one pail, then came down and carried up the second pail. By this time the abdominal pains had become so severe that she

was compelled to go to bed, where she applied a liniment to the abdomen. About one hour after she arose, though without acute pain, yet with a sense of pelvic soreness. The next Sunday she walked a distance of one mile. This coal-household traumatism had occurred twelve days before she called me. During this time she had done her own housework, heavy washing, etc., without pain, only a feeling of soreness in the lower abdomen and discomfort. The following Wednesday morning she had taken some Hunyadi water; in the bathroom, while movement occurred, she grew faint, and when movement finished she fainted. Intense pain followed, recovering so she could hobble to bed; no uterine hemorrhage whatever. When I called, the patient presented a picture of severe peritoneal irritation. Examination found a firm, rounded, oblong tumor at same site of previous operation. In reply to the suggestion that she was pregnant, she answered that she had been happy in the thought that she was, and that since the attack of twelve days before she feared some serious disaster similar to the first. Diagnosis, without anesthesia, repeated right ampullary pregnancy. She entered the Presbyterian Hospital, the second time, April 9, 1899; Case No. 22627. Operation April 12; chloroform narcosis. Abdomen clear of hemorrhage; no adhesions: mass of right tube and ovary, containing pregnancy of about six weeks, removed close up to the uterus without difficulty. The reason that there was no free hemorrhage into abdominal cavity will be seen by referring to the accompanying illustration (Fig. 2). The interval marking where rupture of fimbriæ of tube had taken place was plugged up by a firm clot, fortunately checking both hemorrhage and opening. The left ovary seemed smaller than usual, but was without cysts. Uterus well in its perpendicular, no traces of former bands of adhesion either to rectum or abdominal wall. Patient returned from operation in fairly good condition. Her recovery was prompt, patient going home after the fifth week. Household duties resumed without discomfort.

Third Operation.—For cystic degeneration of left ovary. Patient again presented herself at office for diagnosis because of a slight bright-red hemorrhage from the uterus. In the interval since the last operation she had enjoyed good health. Menstruation regular and without pain. Examination yielded a fluctuating, rounded tumor to the left of the uterus—a cystic ovary. Entered hospital for the third time September 20, 1899;

Case No. 23764. September 21, operation; chloroform narcosis. No adhesions. Easily removed the mass, made up of the cystic degenerated left ovary and part of that tube. The patient returned from the operation in good condition. Discharged October 11.

Subsequent History.—For some seven months after third operation patient speaks of a monthly complex of symptoms, such as flushes of heat, nervousness, irritability, and a feeling of general malaise—as she expresses it, “as though she wanted to be sick (menstruation) and could not”—corresponding in time to that of her previous periods. She never has had even a sign of blood since the last operation. This monthly complex I attributed to the continued but declining irritability of that part of the menstrual cycle still remaining. This has gradually passed away. As to her present physical condition, as you see to-night, May 29, 1901, she is well and in splendid health.

Other Cases.—Other cases presumed to have been repeated same-sided tubal pregnancy have been recorded, viz., by Alban Doran, J. W. Taylor, T. F. Prewitt, Gottschalk, Bennington, and the latest by P. A. Harris, of Paterson, N. J.¹ These cannot be included among the undoubted because of insufficiency of laudable evidence.

The Impossible in Tubal Pregnancy.—Included in the account of Haydon's case is a “Report on Specimen, by Dr. Tyler Smith and J. Braxton Hicks. From hence we infer the following: 1. That some time since (five years before) the patient had conceived extrauterine; that the fetus was attached to the fimbriated extremity of the Fallopian tube (left) in such manner as not to form impediment to subsequent conception; that this fetus died at about the second month of pregnancy, enclosed still in its ovular structure; that it then dwindled gradually away to its present state, the chorion villi being absorbed. 2. That at a later period, probably some months before death, she again conceived, also extrauterine, but the ovum had this time descended to the middle of the tube; that it was there arrested, lived about three months, and then died, three months after which the sac bursted ensued.”

It seems rather strange that this report by so well-known writers as Drs. Smith and Hicks should meet with such emphatic doubt as that expressed by a subsequent writer and one also well known for his work on the tubes and ovaries. Speak-

¹ Medical News, vol. lxxvi., 1900, p. 561.

ing of repeated tubal gestation, J. Bland Sutton¹ writes: "Parry has grouped under this heading several cases of women who have been known to bear more than one extrauterine child; but it may be at once stated that of the nine cases adduced by Parry, not one can be regarded as of the least value in establishing such an occurrence. Indeed, in one instance he is so credulous as to believe that tubal pregnancy may happen twice in the same tube. The case in question is reported in great detail by Dr. Haydon, whose account is supplemented by a report on the specimen, signed by Drs. Tyler Smith and Braxton Hicks. This paper is illustrated by a plate, from which it seems exceedingly probable that the patient had a bicornate uterus.² Repeated gestation in the same tube is an impossibility, for the pregnancy produces such gross changes as to render it functionless."

So writes Sutton in 1891. Whatever doubt may have seemed justified then, to-day, in view of the incontrovertible evidence as furnished by these later cases (2 and 3), there can be no

¹ Diseases of Tubes and Ovaries.

² Not only Sutton (1891) regards this case as doubtful. Likewise Varnier and Sens (*Annales de Gynécologie d'Obstétrique*, Mars, 1901, pp. 170-171), in referring to this case, include it among the "elles manquent de la précision anatomique et clinique qu'on est en droit d'exiger pour des faits aussi extraordinaires, viz., N. P. Haydon, W. Taylor, T. Prewitt, Gottschalk, et Alban Doran."

The writer prefers to include Haydon's case among the undoubted. For if the doubt be based only, as it seems, upon the presumption that there was a bicornate uterus present, over against that view lies the fact that Drs. Smith and Hicks spoke of that uterus in a way implying a normal development, so far as the uterus itself is concerned, as may be seen in the following: "Uterus nearly four inches long, two inches wide. The walls proportionately thick. Interior of uterus lined with a very thick decidual membrane, now easily separable. This layer is quite as thick as is found in normal gestation at its fullest development, and under the microscope is found to possess the elements of the decidua of pregnancy" (from their report).

A bicornate uterus under those circumstances would be so pregnant a uterine developmental anomaly that the gentlemen could not avoid its recognition, and, I dare say, would not avoid its annotation. Nor does it follow as a consequence that, given a bicornate uterus, a unilateral or a repeated homotopic extrauterine pregnancy is impossible. The slightest dipping down of the fundus of the uterus of my case would have brought it within the range of the bicornate uteri. Though it must be admitted a septum, complete or partial, might influence such occurrence, yet the etiological factors lie essentially extrauterine, beyond the cornua.—S.

more room for doubt, not even for a purely technical one, such as possible other-sided migration of the ovum with subsequent implantation. For, aside from Coe's and Heinricius' cases, my case, as shown by its history and by illustrations of both pregnancies, with the still fresh corpus luteum of the right ovary, removing all doubt as to the origin of the second ovum, meets all his objections. Therefore I would offer these conclusions:

1. Repeated gestation in the same tube does occur. In fact,



FIG. 3.—From a section of the right tube close to the gestation sac. The specimen from which this section is taken shows a U-twist in the tube; undoubtedly the salpingitis with this twist caused such a stenosis of the lumen at this point as to permit of sufficient space for the passage of the spermatozoa to the waiting ovule, but was so narrow that it checked at this point the passage of the larger ovum in its course toward the uterus. Congestion with hypertrophy.

the ease with which such a primary tubal pregnancy may pass unrecognized and have comparative health follow would strongly suggest that a more frequent occurrence of repetition takes place than is reported.

2. Repeated gestation in the same tube (or other part, as abdomen) is not an impossibility; it occurs.

3. It does not follow that a former pregnancy produces such gross changes as to render it (the part) functionless.

Etiology.—The right tube and ovary. Ovary, some inflam-

matory round-cell infiltration, slight in character. The fresh corpus luteum shows ovary possessed of good physiological function. Tube, slight torsion near fimbriae: epithelia of tube uterine-ward from sac. microscope shows them to be swollen and over-ripe, but nowhere is there loss of epithelial cells or exposure of the basement membrane. Slight round-cell infiltration into other coats—a picture of a mild salpingitis.

The left tube and ovary show microscopically: Ovary, cystic, monolocular, seven by four and a half centimetres; marked fibrosis and pressure atrophy with disappearance of paren-



FIG. 4.—From a section of the left tube close to the cyst. Tube markedly twisted. Fibrosis with atrophy.

chyma. Tube, a similar condition of fibrosis, complete loss of epithelium, so picture looks like branches without leaves. Both functionless. Firm occlusion of fimbriae. Marked torsion of the tube. The etiological factor of left-side sterility is plain, chronic salpingitis and ovaritis, due, as also the slight inflammatory changes of the right side, to the septic pelvic trouble following the first labor.

In the early fifties Virchow ascribed salpingitis with its changes as the important etiological factor in extrauterine pregnancy, its inflammatory exudation stiffening the tubal coats, causing impairment to its ovum-carrying functions. Since then

much has been recorded *pro* and *con*, especially within the last fifteen years. It would be impractical to mention even a few of these many writers or their opinions in detail. It will suffice to mention several to show the trend that obstetrical thought is assuming to-day. Contrary to this opinion, Edgar writes¹ in his report of a case of repeated extrauterine pregnancy "that he found no pathological changes and is of the opinion, like other authorities, that salpingitis plays no important rôle."

On the other hand, Moseowicz² presents two cases in which he associates tubal pregnancy with tubal infection.

Franz³ also favors salpingitis as etiological factor. He advances the theory—and I venture to say that this is the popular opinion accepted to-day (aside from those cases due to anomalies of development, as accessory tubes, etc.)—that extrauterine pregnancy occurs in convalescent tubes, in which the ovum-carrying function of the tube is disturbed for a time and eventually has been gradually but imperfectly re-established. So far as my case is concerned, its history, clinical, macroscopical, and microscopical, shows salpingitis (following the pelvic sepsis after the first labor) as the important factor in its etiology, confirmatory of Virehow's early and Franz's to-day opinion.

Query: Why was not the right tube and ovary removed at the primary operation? Conservatism: In conversation with the patient, and which in spirit was repeated each time, she begged: "Doctor, don't, don't—oh, you know, please don't. I love my husband and we both love children, so please spare them if you possibly can." I offer no other argument.

PERCENTAGE MODIFICATION OF COW'S MILK FOR INFANT-FEEDING,⁴

BY

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THE subject of infant-feeding is a most important one, viewed from a standpoint either of mortality or morbidity. The mor-

¹Edinburgh Medical Journal, July, 1899, p. 35.

²Centralblatt für Gynäkologie, Bd. xlii., 1899, p. 1290.

³Centralblatt für Gynäkologie, Bd. xlii., 1899, p. 1290.

⁴Read before the South Texas Medical Society, June 21, 1901.

tality of infancy is notoriously high, due in some instances to neglect and bad environment, but mostly to bad food and worse methods of feeding. The morbidity of this period, due almost entirely to errors of diet, is witnessed by the many cases of malnutrition, marasmus, rickets, scurvy, and the catarrhal affections of the intestinal and respiratory tracts which carry off so many of these poor unfortunates during the much-dreaded second summer. This condition of affairs is all the more lamentable because it is for the most part preventable by providing good food and proper methods of feeding.

It is most important that a foundation of good health be laid during this period, otherwise the child starts life handicapped with a poor digestion and a feeble constitution, liable to fall an easy prey to any of the common diseases of childhood, which a healthy child would probably not have contracted, or, if it did, would have had the vitality and resistance to have recovered.

It is a much-to-be-deplored fact that maternal feeding is gradually, but none the less surely, being superseded by some kind of substitute feeding. The reasons for this are many, and I fear the condition will never improve to any material extent. Many mothers of the present day have neither the quantity nor quality of milk to properly nourish their offspring; others are not willing to give up sufficient time to the nursing of their infants and the care of their own health to secure a normal lactation. With a much larger class the failure of the maternal milk supply and the resort to artificial feeding is due directly to ignorance and indulgence on the part of the mother, and, secondly, to negligence on the part of the family physician in not instructing the mother upon the importance of nursing her infant regularly during the first nine or twelve months and in the care of her own and the child's health during this period. No *artificial* food or method of artificial feeding can or will ever be equally as good as the maternal breast; for this reason, whenever, from any cause, the milk supply appears to be failing in cases under our care, it should be our most earnest endeavor, by regulating the intervals of nursing, the food, exercise, and environment of the mother, to again secure a good milk supply. When the breast fails utterly to secrete a normal milk supply, then, and then only, should we resort to a substitute food.

The milk laboratory and the modern percentage method of modifying cow's milk have placed infant-feeding upon such a simple, accurate, and yet scientific basis that it has led to its gen-

eral adoption by the profession. Unfortunately, the milk laboratories are available to but comparatively a few. This is owing to the greater cost of their products and the fact that they are only located in the larger cities. But their methods can be studied by each practitioner, changed and modified to suit his own surroundings, so that a sufficiently accurate and reliable home modification of cow's milk may be made to insure the successful raising of most infants.

Some one has aptly said that there have been three periods of milk modification.

1. The period of indefinite modification—a kind of go-as-you-please method, when the milk was only once or twice diluted, as suited the fancy of the mother or doctor, no attention being paid to the chemistry of the milk or the digestion of the child.

2. The period of definite modification, when Meiggs, Pepper, and their school attempted to make cow's milk conform chemically to mother's milk. This was a big improvement on the older methods, but unfortunately was fed to infants of all ages and conditions, being modified only in the amount given, according to age. In other words, the infant must be fitted to the milk.

3. The accurate modification of milk. This method, first brought to the attention of the profession by Dr. Thomas M. Rotch and the milk laboratories which he helped to establish in Boston and elsewhere, is known as the percentage method of modifying cow's milk, and endeavors to change the chemical constituents of the milk—the fats, sugar, proteids, and ash of cow's milk—to suit the digestion and assimilation of each individual infant.

To any one who has not made a special study of infant-feeding, and who has been in the habit of ordering his milk and cream mixtures in a haphazard manner, by the tablespoon or teacupful, the percentage method appears a useless waste of time and energy; but to understand the subject of infant-feeding it will take both time and study, and any one not willing to devote the necessary time to this work will certainly be disappointed in his clinical results, for modified milk, unless properly adjusted to the requirements of the case, is just as bad for the infant as any of the commercial prepared foods.

It is necessary to use the percentage method, so we will have some idea of the proportions of the elements of the milk and to enable us to understand one another in discussing this subject.

The percentages used may not be exactly correct, but they are near enough for working purposes.

To have the profession generally adopt the percentage method of feeding it is necessary to provide a simple, quick, and accurate method for working out any amount and percentage of the elements wanted. Most of the formulas recommended for this purpose are entirely too intricate and cumbersome for the busy practitioner to master and put into practice. I have been using for the past several years the following method, which I find sufficiently accurate for clinical work, requiring no more time and thought than any ordinary recipe, and any formula desired can be worked out in a few minutes. It has the further advantage of being cheap and within the means of the poor: a quart of milk usually furnishes all the cream and skimmed milk necessary for use.

The method is based on the fact that ordinary cream, milk, and skimmed milk contain relatively the same amount of proteids and salts, and that cream is simply a superfatted milk.

	Whole milk.	Cream. 16 per cent.	Cream, 12 per cent.	Skimmed milk
Fats.....	4	16.	12.	0.13
Sugar.....	4.30	4.	4.20	4.40
Proteids.....	4.	3.60	3.80	4.00
Salts.....	.70	.60	.94	.70

Method.—Multiply the quantity of milk mixture wanted by the per cent of fat desired, and divide by the per cent of fat in the cream used = amount of cream. Multiply the quantity of milk mixture wanted by the per cent of proteids desired, and divide by 4, the per cent of proteids in the skimmed milk: this quantity less the amount of cream equals the amount of skimmed milk to be used. The quantity of milk mixture wanted less the amount of milk and cream equals the amount of water or other diluent to be used. Add three drachms (level tablespoonful) of milk sugar for every ten ounces of mixture, and alkalize by lime water or soda.

Example.—Five bottles of eight ounces each equals forty ounces, quantity desired.

Formula: 4-7-2 Gravity cream 16 per cent.

Cream	10 ounces.
Skimmed milk	10 "
Water	20 "

Total..... 40 ounces.

Milk sugar, four level tablespoonfuls.

The cream used is the ordinary skimmed or gravity cream obtained by the setting process. One quart of fresh milk of average percentages is placed in a glass jar, and this upon ice. At the expiration of six hours about 6 ounces of a 12 per cent cream can be obtained, and after twelve hours about 5 ounces of a 16 per cent cream.

In the home modification of milk we have to meet and overcome many difficulties not encountered when using the laboratory, but with a little time and perseverance just as good if not better results can be obtained. The most important factors to be reckoned with are the milk supply, the infant, and last, but not least, the mother and her environments. The milk should be fresh and clean: as little time as possible should be lost between the udder and the preparation of the mixture, and with as little handling of the milk as is absolutely necessary. Not less important is cleanliness in connection with everything pertaining to the cow, her food, and milking. The necessity for pasteurization or sterilization is in inverse proportion to the attention which has been paid to the foregoing factors, cleanliness and freshness. The digestion, capacity, and assimilation of each infant is the problem to be met and worked out in each individual case. The size, weight, and age of the infant are always considered in prescribing a milk mixture, but, after all, the principal question is, what can this infant digest? It is better to begin always with low percentages and gradually increase up to the digestive capacity of each case. When a mixture is prepared for a child it may be regarded as a test of what our previous experience teaches this particular infant needs. Sometimes we hit the nail on the head the first time and the mixture just suits the case; more often some one of the elements has to be changed before the infant thrives. The last factor, the mother and her environments, is a subject upon which much could be written and is frequently the most important consideration met with in substitute feeding. If the family is too poor to buy good milk, and ice to keep it upon, modified milk is out of the question and

some infants' home the last resort. I have found few mothers too ignorant to prepare their infant's food if they were once shown how and had explained to them the necessity for cleanliness and method.

The principal index of a child's prosperity on modified milk, or, for the matter of that, the breast, is its gain in weight and the number and character of its stools. To thrive, an infant must gain at least four ounces per week; if not, it is being improperly nourished, is sick or going to be sick. If one loses steadily in weight, it is a grave danger signal. Much can be learned from the stools, in fact more than from any other means, and they are really the indices for any change in the elements of the milk. One or two bowel movements a day are normal, and more should be looked upon with suspicion. The color of the normal stools of a breast-fed infant should be known to us all, and one on a well-modified milk should be of nearly the same character. Lack of sufficient fat causes constipation and a more or less clay-colored stool, while too much fat causes yellow, greasy-looking movements of greatly increased frequency. The green stools so often seen show an excess of proteids, or the baby got its milk too fast and the casein has not been digested, making an excellent culture medium for the germs which produce the green color. A highly offensive, fetid odor is due to the putrefactive processes of the proteids, while the fermentation of starchy foods gives a musty, sour smell, with increased number of movements which are apt to cause excoriations of the buttocks. White particles usually seen in the green stools are small masses of undigested casein, but care should be taken not to confound them with very similar-looking particles seen in fatty stools. The putrefaction of proteid food causes poisonous ptomaines with elevation of temperature and other constitutional symptoms. The fermentation of starchy food causes colic and diarrhea, but seldom any constitutional symptoms.

There is quite a diversity of opinion among the profession as to the value of the decoctions of the cereals, principally rice, barley, and oatmeal: some claiming that they make superior diluents, and others that they are of value as food, principally starchy. In my own clinical work I cannot say I have found them of any advantage in the early months of infancy, having had just as good results with water as a diluent. After the ninth month I give them as a routine measure, providing some starchy food for the increasing functional development of the salivary and pancreatic glands.

TWO CASES OF BRAIN TUMOR IN GYNECOLOGICAL PRACTICE.¹

BY

HUNTER ROBB, M.D.,

Professor of Gynecology, Western Reserve University; Gynecologist-in-Chief to Lakeside Hospital, Cleveland, Ohio.

(With two illustrations.)

THE two cases following both occurred in gynecological practice. Both proved fatal, and in each case the autopsy showed that the brain condition and not the trouble for which the patients came to us was the cause of death. The cases differed clinically in this respect: that in the first no brain lesion was suspected, whereas in the second the clinical findings pointed strongly to some complication in this region.

CASE I.—The history of the first case is as follows: Mrs. E. C., married, aged 30, occupation housework, was admitted to Lakeside Hospital December 10, 1898. She had had two children, the older 5 years, the younger 14 months old. She had had one miscarriage two years previously at the fifth month of pregnancy. Her confinements were easy and there was no fever following. Her menses first appeared at 15; they were always regular, and, with the exception of a slight amount of pain for the first few days, practically they were free from discomfort. They lasted seven days, as a rule, and were not profuse. Her last menstrual period had occurred two months previously, since which time she had had a profuse leucorrhea. Four days before admission into the hospital she was seized with pain in the back, which she says resembled labor pains. For about a week there had been noticed a slight flow of blood from the vagina. She was emaciated, weighing one hundred and fifteen pounds, but otherwise her symptoms had no special bearing on the case. The family and personal history were perfectly negative.

Examination showed the vaginal walls to be completely everted. The uterus projected through the vulval orifice. There was a slight bilateral laceration of the cervix; the lips were edematous and somewhat discolored. The vaginal walls were smoothed out, obliterating the ordinary rugous condition of the

¹ Read before the Cuyahoga County Medical Society at Cleveland, February 7, 1901.

vagina. The fundus of the uterus was in retroposition. The Fallopian tubes and ovaries were not palpated. The other organs of the body were negative. There was no marked anemia. The blood count showed: leucocytes, 20,000; reds, 3,950,000.

The uterus was replaced after the first examination. The same afternoon the patient miscarried, a fetus of about three months coming away. Although at the time the placenta and fetal membranes came away apparently intact, the next day the temperature rose to 102.4° F., falling on the third morning to 99° F. This alternate rise and fall of temperature kept up for the next nine days, the highest point (103° F.) being reached on the sixth day. During this time, however, there was no fetid discharge from the vagina. On examination I detected what seemed to be some débris in the retroflexed uterus and consequently determined to thoroughly cleanse the uterine cavity. A considerable amount of placental débris was removed, and the cavity of the markedly retroflexed uterus was then thoroughly irrigated with hot sterile salt solution and packed with sterilized gauze. The temperature after this was normal and remained so from this time on. On the tenth day following the cleaning out of the uterus a vaginal hysterectomy was undertaken on account of the large size of the prolapsed uterus. After the operation the temperature remained practically normal, reaching 100° F. on the third day, which was the highest point. From the fifth day after the operation the pulse was never more than 100 to the minute, and as a rule it was between 80 and 90 and of good volume. We considered her to be entirely over the operative procedures, and were making arrangements for her to have the perineum repaired in order to prevent the vaginal walls from prolapsing. The preparation of the patient for the operation was to be made the night she died. She was sitting up in bed, and while eating her supper she suddenly became unconscious and died shortly afterward.

*Anatomical Diagnosis.*¹—Congenital pia-arachnoid cyst of base of brain. Chronic fibroid apical tuberculosis. Chronic passive congestion of liver and kidneys. Acute interstitial nephritis. Acute splenic tumor. Cardio-vascular hypoplasia.

Cultures.—Negative, except for a few colonies of the staphylococcus pyogenes aureus in stitch abscess. Examination of the thoracic organs showed nothing of special interest except well-

¹Pathological Laboratory, Lakeside Hospital.

marked hypoplasia both of the heart and aorta. The heart weighed only one hundred and seventy-five grammes, and the aorta at its passage through the diaphragm barely admitted the little finger. The aortic walls were usually elastic. The line of closure of the hysterectomy incision was perfect, with the exception of one small stitch abscess.

Examination of the Head.—The scalp showed nothing abnormal. The skull was rather thin. The dura was normal. Examination of the cerebral hemispheres was also negative. As the brain was lifted out of the skull, a large cyst was seen at the base, filling the cerebral fossæ. It measured about six centimetres in its widest diameter, and was in direct communication with the fourth ventricle. Its walls were formed by a direct continuation of the pia arachnoid; the cerebellar fossæ were much shallower than normal, and the cerebellar lobes were markedly atrophic. This condition was especially noted on the right side, on which the cerebellum was almost entirely absent, measuring 2 x 1 centimetres, whereas the left lobe measured 3 x 2 centimetres. The appearance of the medulla and pons was much modified by the almost total absence of intercerebellar fibres and of the cerebellar peduncles. A further abnormality was noted in the complete absence of the sixth nerve on the left side. There was no excess in the ventricles.

In this case the clinical history by itself would have negatived any assumption of a septic infection, and the fact that cultures from the organs were negative, except in the case of a strictly localized stitch abscess, proved conclusively that a general infection could not have existed. It is not easy to explain why the cyst in the brain, after being innocuous for so many years, should suddenly have brought about death without any apparently exciting cause.

CASE II. *Angiosarcoma of the Brain Complicating a Pregnancy of Four Months.*—In the second case the patient, Mrs. S. E. R., aged 25, nullipara, was sent to the hospital by Dr. Franke on February 27, 1899, complaining of persistent vomiting, thought to be due to a pregnancy of four months' standing.

The family history has no bearing upon the case. No instances of insanity or of any serious nervous disturbance in any member of the family.

Personal History.—Patient has never had any serious illness. Since the sudden death of a sister four years ago she has been

subject to nervousness with sudden twitchings, severe headache and vomiting, usually at the menstrual period. There is no history of fainting or of loss of consciousness.

The last menstrual period occurred in November, 1898, since which time she has had persistent vomiting, beginning in the morning and lasting several hours.

On admission to the hospital she complained of nausea and vomiting, persistent headache, chiefly frontal and over the right eye, weak eyesight and debility.

Examination showed the blood to be about normal, hemoglobin over eighty per cent. The urine was normal in amount and contained no abnormal substances. The amount of urea excreted in the twenty-four hours was about normal.

Physical examination of the abdomen and pelvic organs led to a diagnosis of a pregnancy between the third and fourth months.

While in the hospital, from February 27 to March 2, she vomited only twice. During the next four days she complained of violent headache. On March 12 she began to vomit again and to exhibit signs of mental aberration. On March 15 she was so dull and apathetic that she would not answer questions. Examination of the urine showed no abnormality. The knee jerks were absent. The pupils responded to light. An ophthalmoscopic examination (March 16) by Dr. Milliken showed an optic neuritis of both eyes.

On March 18, after consulting with Dr. Franke, it was determined, on account of the mental condition and the persistent vomiting, to empty the uterus. The membranes were ruptured and portions of the fetal structures were brought away with the curette and the placental forceps. The mental condition remained unimproved. Two days later the remaining portions of the fetal structures were expelled. On the third day the temperature rose to 104° F. and the pulse to 120. Examination of the uterus showed that some small pieces of membrane were still adherent. These were removed and the uterine cavity was washed out thoroughly with salt solution. After this the general condition of the patient was only slightly, if at all, improved, and her mental condition seemed to grow gradually worse. She remained unconscious for nineteen days in all, and died sixteen days after the uterus had been emptied, without regaining consciousness. At no time did the urine show the presence of any albumin. Just before death her temperature

reached 106° F. After the abortion the highest temperature was 101° F. until the third day, when it reached 102° F. On the fifth day it rose to 104° F., after which time it gradually came down till within three days of death, when it went up again. At no time was there any distension of the abdomen nor did the pulse or general condition in any way suggest peritonitis.

*Anatomical Diagnosis.*¹—Angiosarcoma of right frontal lobe of brain. Fibrino-purulent pleurisy. Broncho-pneumonia. Congestion of the liver, spleen, and kidneys, chronic interstitial splenitis. Cloudy swelling of the kidneys.

Cultures from the lungs, pleura, and uterus gave the bacillus mucosus capsulatus in pure culture.

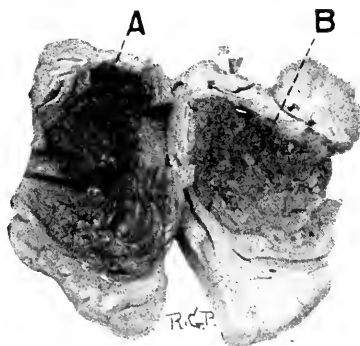


FIG. 1.—Sarcoma of the brain. a, cyst cavity; b, tumor mass with degenerated centre. One-quarter natural size.

The thoracic and abdominal organs showed no marked pathological changes other than a moderate broncho-pneumonia associated with fibrino-purulent pleurisy. The uterus was somewhat large and congested; the cervix was patulous and admitted two fingers.

Examination of Head.—The scalp and skull were normal. The dura was nowhere adherent, and there was nowhere any excess of fluid. Examination of the hemispheres showed a well-marked flattening of the convolutions on the right side, especially anteriorly. On the lower surface of this hemisphere, just above the right orbit, there was a small dark spot, about one centimetre in diameter, rather denser than the surrounding brain substance. The consistence of the whole right hemisphere was distinctly firmer than that of the left. The left hemi-

¹Pathological Laboratory, Lakeside Hospital.

sphere, cerebellum, medulla, pons, and cranial nerves showed nothing abnormal.

On section of the brain, the left hemisphere, cerebellum, pons, and medulla showed nothing except moderate congestion. Section of the right hemisphere showed a large mass in the anterior portion, dark brownish red in color, and sharply defined from the adjoining brain tissue. It measured 6 x 3.5 centimetres, and its limits of extension were as follows: *dorsally*, to a vertical line through the junction of the lower and middle thirds of the Sylvian fissure; *ventrally*, to a point one centimetre from the anterior tip of the frontal lobes; *superiorly*, to the level of the

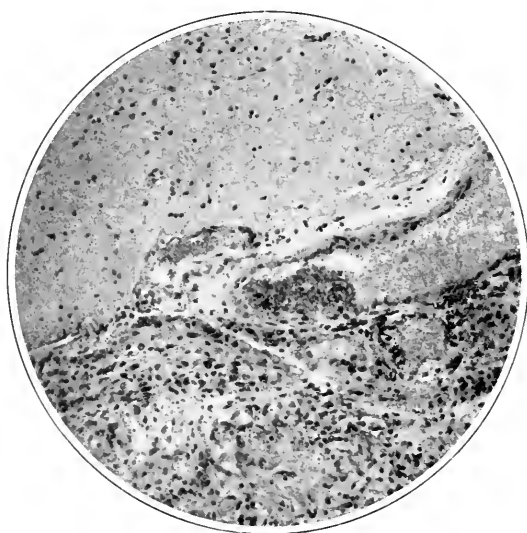


FIG. 2.—Sarcoma of the brain, showing sharp line of demarcation between the tumor and the compressed brain substance. Ocular 4, obj. 3, 120 diameters.

suleus between the superior and middle frontal lobes; *inferiorly*, almost to the orbital surface of the frontal lobes, at the dark spot above mentioned; *medially*, to within one centimetre of the mesial border of the hemisphere; *externally*, to a point three centimetres from the outer surface. The shape was roughly oval, the long axis lying dorso-ventrally. The upper portion was occupied by a cyst, 3 x 2 x 1 centimetres in size, filled with broken-down tumor material.

The entire brain was hardened in four per cent formalin, after which small pieces were removed for microscopic examination. Careful study of sections from various portions showed a tissue rich in cells which were large, polygonal or spindle-

shaped and contained large, oval, vesicular nuclei. These cells lay in a minimal amount of stroma and showed no special arrangement other than a tendency to the formation of bands of cells. The mass contained a very large number of blood vessels, in many of which, both arteries and veins, there were thrombi. The central portion of the tumor was occupied by a necrotic area, which took a diffuse eosin stain, in which the cell outlines for the most part could still be distinguished. All the vessels in this area were thrombosed and showed no nuclei in their walls. The mass, at its edges, was everywhere sharply differentiated from the neighboring brain tissue, which showed marked congestion, and occasional thrombi in the blood vessels.

In some portions of the tumor giant cells were found; and in other places, especially in and about the degenerated areas, a large amount of dark pigment, both free and in cells. This pigment gave the iron reaction with potassium ferro- and ferri-cyanide, and was recognized as hematin.

Special stains for glia tissue, medullated nerve fibres, and elastic tissue failed to show the presence of those constituents.

Although no special relations of the tumor cells to the blood vessels could be made out, the weight of evidence is against the diagnosis of glioma, on account of the sharp differentiation from the adjoining tissues, the absence of nerve elements and glia tissue, and the extreme vascularity, together with the markedly cellular character of the growth. After careful consideration, the diagnosis of *sarcoma* was made, and, on account of the number of blood vessels, the growth was designated as an *angio-sarcoma*.

I have to thank Dr. Roger G. Perkins, Resident Pathologist to the Lakeside Hospital, for the abstracted records of the autopsies, and for the photographs.

702 ROSE BUILDING.

THE EXCESSIVE VOMITING OF PREGNANCY.¹

BY

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A MODERATE amount of vomiting in the early part of pregnancy is so common that we can scarcely consider it morbid, and give it only such attention as the discomfort of the woman

¹Read before the Cincinnati Obstetrical Society, May 9, 1901.

may demand; but occasionally we see cases which transgress all limits of health and may lead to speedy death.

To what to attribute this excessive gastric irritability is a problem which has received very varied answers, many of which, I believe, have very little reason in them. To such an audience as now listens to me text-book quotations are out of place, but, as the basis for a few deductions, let me remind you of the very extensive nerve relations of the pregnant uterus, not only having great development within its own structure, but having intimate connection through the sympathetic system with all the viscera, and through the spinal system with more remote parts.

When conception occurs this complicated system is aroused to special activity, as F. H. Martin has recently said:¹ "Through its communicating branches it must immediately negotiate with the heart for more blood for the new requirements for nourishment of the embryo; with the stomach and intestines—with the former to digest more food, with the latter to increase its assimilation; with the breasts for preliminary changes to provide for the required development in their milk glands; and through the cerebro-spinal nerves with the brain to increase hunger. As the fetus grows the uterus must be developed, other organs of the pelvis and abdomen must be carefully prepared to make room for the growing uterus, menstruation must be stopped. All develops gradually, automatically, and intelligently, and as it becomes more complex is less under the control of the higher brain." Finally it brings about all the wonderful combinations of innervation, secretion, and muscular action which result in the birth of the child.

This intimate mechanism of nerves which works on automatically in health, without friction, or pain, or consciousness of its activity to the individual possessing it, is capable of becoming one of the most complicated nests of torture one can imagine, if for any reason the normal arrangement becomes disturbed. A displacement or a centre of infection within the uterus has the effect of disturbing the endings of a large number of communicating nerves; this will result in false impressions being conveyed to the heart, lungs, stomach, intestines, and brain. As these impressions are not regulated, the functions of these organs will become erratic and unsymmetrical. Remembering these facts, we can readily connect, if we cannot explain, many of the morbid conditions associated with pregnancy—the kidney

¹ Jour. Am. Med. Assoc., May 11, 1901.

of pregnancy and its sequel of eclampsia, perverted cutaneous nutrition, hysterical manifestations, suppressed excretion and its consequence, toxemia, and not rarely the condition the subject of these remarks: excessive vomiting of pregnancy.

With these premises we are prepared to ask the causes of the excessive vomiting. To say it is "reflex," as a recent prominent writer has done, is to darken counsel with words without wisdom. It has been known for generations that impressions on one nerve may manifest their effects on some one remote from the one impressed, and that is "reflex" action. We must admit that the impression originates in the pregnant uterus; its transmission, I believe, is through various channels, and therefore we have various conditions as secondary causes of the vomiting. In one case, as far as we can discover, there are no organic lesions and we must regard it as a "neurosis" pure and simple; in another case we discover a local lesion, displacement, erosion, or other morbid condition, and here find the source of the perverted action; in another there is perversion of excretion and hence retention of elements of urine, bile, or cutaneous exhalation, with a consequent toxemia and its results, disordered nerve function, in this case vomiting.

Granting the truth of these propositions, we have an explanation of the diversity of opinion held regarding this condition. One observer regards all cases as hysterical; another believes it cannot exist without previous disease elsewhere; but I believe it should be regarded as a manifestation of the effect of different secondary causes, all of which, however, have been influenced by the primary cause—pregnancy.

This view of varied effects from one cause explains the beneficial result, whatever the symptoms which follow interruption of pregnancy, whether spontaneous or induced, and, on the other hand, the futility of all effort addressed to the organ remotely affected.

As illustrative of these effects I call your attention to the following excerpts from my experience:

Seen with Dr. Stapleford: Mrs. B., æt. 24, primipara, previous health always good, vomited moderately during first three months of pregnancy, after which it ceased and she felt well. When six months advanced she slipped, and to prevent falling grasped a clothes line overhead, by which her whole weight was thrown upon her right arm extended, putting the muscles violently on the stretch, causing severe pain in the lower part of

right thoracic wall; the pain continued to time of my first visit, two weeks after accident, requiring two hypodermatic injections of one-quarter grain of morphia per day to relieve it. Immediately after the accident she began to vomit, the ejected matter usually being stained with bile; the urine was dark colored, said to be bile-tinged.

At my first visit, two weeks after the accident, I found marked superficial tenderness along the course of the lower ribs of the right side; great complaint of pain; the vomiting has continued without cessation, everything being ejected, and without benefit from any remedy used; bowels have been constipated; she has emaciated rapidly, and is now so weak as to be unable to sit up; her tongue is dry, pulse 120°, no pulmonary symptoms. Vaginal examination shows nothing abnormal. After my visit urine was found to contain twenty per cent of albumin, with secretion of forty-eight ounces.

I advised seltzer water for drink, albumen water, and five drops of Fowler's solution three times a day, with free purgation with calomel.

Two or three days later the quantity of Fowler's solution was reduced to three drops, and, as albumin was found in large quantity in the urine, hot baths were advised. On one occasion the patient was delirious and the temperature was 101°.

April 9: Patient has vomited but once in forty-eight hours; has retained small quantities of milk; pain in side has disappeared, but she has frequent paroxysms of pain in abdomen, believed to be flatulence; tongue dry and brown; temperature normal; pulse 102.

The question of inducing labor had been discussed, but action deferred; but about two weeks later spontaneous delivery took place, followed by restoration to health.

I am indebted to Dr. A. Gaither for following history: Delivered Mrs. S. of twins June 13, 1897. During this pregnancy she had no nausea, showing in this case the fallacy of the theory that distension of the uterus causes excessive vomiting.

July 25, 1898, she aborted at six to eight weeks of gestation.

She menstruated October 1, 1898, but about October 15 she began to have morning sickness; this continued until March 1, 1899. She was emaciated, and so weak as to be confined to bed; the nausea and vomiting being continuous, and remedies were of no avail. In the latter part of February she had some discharge

of blood from uterus; at this time patient improved rapidly. The flow was checked by March 5, but March 16 she aborted.

Dr. Gaither makes this note of another case: Delivered Mrs. B. of female child April 11, 1899. Mrs. B. claims that not a day passed during the entire pregnancy that she did not have morning sickness.

Woman æt. 20, four and one-half months advanced in first pregnancy. Vomited moderately during first three months, then ceased, but the vomiting returned and recently has been excessive, so that she retains nothing introduced into stomach. Says she has had no movement of bowels for two weeks. On admission to hospital she was much emaciated, very feeble, vomiting constantly, the ejected matter being bile-tinged and having fecal odor. A mass, supposed to be fecal, felt in left iliac region. Urine normal, temperature subnormal. Free purgation was produced and cocaine freely administered, ice applied to epigastrium, milk and lime water, with but little effect on the vomiting. Four days after admission she aborted spontaneously, the vomiting ceased, and she convalesced slowly. I believe this case may reasonably be attributed to fecal retention and consequent toxemia.

Case seen with Dr. B. Stanton: Woman about three months advanced in second pregnancy. She had excessive vomiting in first pregnancy, but it seemed to be controlled by ipecacuanha. In this pregnancy she began to vomit three weeks after conception, and many of the usual remedies were tried, but with no benefit. When seen by me her general condition was good, but she was unable to retain anything introduced into the stomach, water being immediately rejected. At my suggestion rectal alimentation was tried, but after a few days was discontinued because of the irritability of the rectum, even when tincture of opium was combined with the enema. About this time the patient asked for a drink of buttermilk, of which a fresh supply had just been brought to the house; she took some and retained it, and from this time drank it freely without vomiting any, and gradually acquired ability to take a variety of food, and went on to full time and was delivered of a vigorous boy.

A similar case of my own, a primipara, vomited everything for about four months, not retaining pure water, and apparently being unable to leave her bed. At one of my visits to her she said she thought she could eat a "chicken pie," for which the Woman's Exchange was renowned. I urged her attendant to

get one with all expedition. She ate one, retained it, and from that time had no trouble and was delivered satisfactorily at full time.

Such cases as the last two may be classed with the "neuroses," but a graver form, well termed "pernicious," should not be so called as it implies an unimportant condition. It unfortunately occurs to one of extended obstetrical experience to meet with cases which do not yield to "suggestion" or profound mental impression.

I was requested to see a young woman, about two months advanced in her first pregnancy, because of long-continued, excessive vomiting; the ordinary remedies had been tried without any benefit.

Induction of abortion was proposed, but I declined to operate, as I believed the woman was too feeble to bear anesthesia or to endure the operation without it. Within forty-eight hours she aborted spontaneously and speedily recovered. About two years after this she began a similar course. I treated her by all approved methods, without any benefit, then induced abortion and she died.

A case seen with Drs. Millikin and Skinner, of Hamilton, O.: Mrs. S. had been pregnant twice, once with twins, without any excessive vomiting. She became pregnant the last time in July. By August 20 nausea was so constant that she was obliged to remain in bed. But little food was retained, and she vomited large quantities of sour fluid, though no food had been taken for twelve hours. Her sleep was disturbed by the necessity for vomiting. Pain in the esophagus was often severe. Salivation was so excessive that she saturated several towels each twenty-four hours. She emaciated rapidly, so that it was estimated that she lost forty pounds in as many days, and was so weak that she fainted if she attempted to sit up. All approved methods of treatment had been tried. When I saw her, her pulse was 140, her extremities cold and livid, vomiting almost constant, whispering voice, profuse salivation. I cleared out the uterus about 6 o'clock P.M. October 9. Vomiting and gastric pain ceased immediately. She took some nourishment and slept well that night; her pulse remained at 140 for five days, and for a long time was not less than 120. In three weeks after the operation she was able to walk about and ultimately was restored to perfect health.

In January last, in consultation with Drs. Fisher and Blair,

of Lebanon, O., I saw Mrs. D., æt. 21 years. Excepting a recent attack of grippe, she has been in good health. She was thirteen weeks advanced in first pregnancy when seen by me. She had been vomiting excessively for several weeks and is said to have lost fifty pounds in weight. She has been treated carefully and according to most recent scientific views, with remedies usually recommended, with no benefit. At present she is emaciated; is unable to raise her head or to speak audibly because of debility; her extremities are cold and livid; pulse 120, feeble; her tongue is dry, the mucous membrane of mouth is abraded; her breath is offensive. She is unable to retain anything in her stomach, and for several days has been sustained by nutritive enemata. Palpation and vaginal examination show an apparently normal pregnancy. As the patient had been carefully treated, I could suggest little medication, but advised dilatation of the cervix; because of her great debility I did not use an anæsthetic, and dilated the cervix one inch with metal dilator. All vomiting ceased at once, and she was able to take fluid nourishment and stimulants freely, but four days after the operation peritonitis developed and two days later she died.

A review of these cases makes it manifest that the conditions upon which they depended were not the same, and therefore necessarily no one method of treatment would be appropriate for them. The only suggestion to make is to carefully investigate each case and treat it according to conditions found.

P. S.—Since writing above the subjoined note has been received regarding a case of excessive vomiting in a woman a few weeks advanced in pregnancy:

CINCINNATI, June 6, 1901.

DEAR DOCTOR TAYLOR:—The patient about whom I spoke to you seems to have been much benefited by cervical dilatation. The first dilatation, which was done June 1, did not include the internal os and gave only temporary relief. Soon after a second operation on the 3d, which included the internal os, she drank and retained a glass of buttermilk. She is now eating solid food, has no vomiting and but little nausea.

As more than fifty hours have elapsed since the operation, I think there is but little danger of abortion resulting.

Very truly yours,

BYRON STANTON.

TOXICITY OF URINE IN PREGNANCY.

BY

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(THIRD PAPER.)

IN the year 1897 the writer made, with the urine of pregnant women, a number of experiments on rabbits with the object of determining the toxicity of such urine. The great variability in results which Volhard¹ had obtained when going over the work of Ludwig and Savor,² Tarnier and Chambrelent,³ Bouchard⁴ and others seemed to justify the conclusion that the intravenous injection of so foreign a fluid as urine was open to grave objection, especially as Volhard found numerous cases in which thrombosis was a decided contributing factor, if not the principal one, in the production of death. The writer's experiments were made with urine which had been collected under what was supposed to be careful asepsis, over boric acid. This urine was concentrated, filtered, neutralized, and injected warm into the abdominal cavities of rabbits, in the proportion of 80 to 100 cubic centimetres to the kilogramme of animal. The following experiment shows the character of the work done:

EXPERIMENT VII.—May 13, 1897. Urine of a primipara (Kramig) aged 21 years. Specific gravity, 1015; acid; no albumin; no sugar. Woman always healthy; well developed; date of expected confinement, June 29, 1897. Family history: Father died of heart disease; mother healthy. No diathetic condition discoverable. This urine was boiled down to one-third of its bulk, to specific gravity 1056; 50 cubic centimetres of this concentrated urine were neutralized, filtered, warmed, and injected into abdomen of a rabbit weighing 1,750 grammes, in fifteen minutes. 4:00 P.M.: Returned to cage; cannot support himself; lies flat on abdomen; makes efforts to regain his feet; respiration slow; supports head against side of cage. 4:07 P.M.: Has convulsion. tonic followed by clonic spasms; opisthotonos;

pupils contracting; breathing in short gasps; lies on side; cannot be aroused; palpebral reflex absent. 4:10 P.M.: Stretches himself every thirty seconds (about); these attacks are undoubtedly convulsive; during interval is quiet. 4:18 P.M.: Attacks come on regularly and are accompanied by a peculiar grunting sound. 4:24 P.M.: The last attack was of longer duration than the others; the abdominal muscles are contracted; the front and hind legs are drawn together; the fore legs tremble, while the hind ones move up and down. 4:28 P.M.: Panting; mouth open; stretching precedes the convulsive attacks, which are becoming more marked. 4:30 P.M.: Violent convulsions; death.

Postmortem examination eight hours after death: Fifty-five cubic centimetres of amber fluid of specific gravity of 1022 found in abdominal cavity; abdominal vessels injected; organs normal in appearance; postmortem discoloration of abdominal wall on left side.⁵

The convulsions which are described were found in almost every case, and simulated so closely the convulsions of strychnia poisoning or of puerperal eclampsia that there seemed to be no reasonable doubt that the urine of pregnancy contained deadly poison or poisons, and that the method of injection made no appreciable difference. It seemed further justifiable to conclude that the poison was very soluble, was not affected by heat, and that it was a constant ingredient of the urine, because the mortality was 100 per cent.

During the year 1897, after the results of the foregoing experiments had been published, new experiments were made under the same method, but upon both rabbits and white mice. The urine was used concentrated and unconcentrated. "The mortality was again nearly 100 per cent. The figures are as follows: Unconcentrated urine taken during the last month of pregnancy killed seven rabbits and two mice, one mouse recovered; when concentrated it killed two mice and failed with one; when taken during labor, unconcentrated urine killed one rabbit and one mouse, and spared none; when taken post partum, the unconcentrated killed two rabbits and one mouse and failed with none."⁶

The method seemed good for rabbits and white mice, and no difference could be detected between concentrated and unconcentrated urine. At this juncture, 1898, Dr. F. Forehheimer suggested that we carry on a new line of work, the urine to be taken not only from pregnant women, but also from patients who were

suffering from various forms of intestinal autointoxication. The results of this joint work were published in the *American Journal of Medical Sciences*, September, 1899. The special work which the writer did in connection with Dr. Foreheimer was published, together with some new experiments, in the *AMERICAN JOURNAL OF OBSTETRICS*, vol. xl., No. 3, September, 1899. The mortality in this special work agreed so closely with that in our joint work that the writer can show what that work was by quoting from his own paper: "The method in detail was as follows: Women were to be near term; the genitals to be thoroughly cleansed with soap and water; the urine to be drawn by sterile catheter into sterile Erlenmeyer flasks, which were cotton-stoppered before and after filling; the urine to be immediately boiled and then sent to our laboratory and injected (this was done usually at once, sometimes twelve or more hours later); injections to be made intra-abdominally under same precautions as heretofore, except that the urine was neither neutralized nor filtered. Experiments were made on six rabbits and twelve mice with urine taken from eight women. The proportions used were about the same as those of the previous experiments (80 to 100 cubic centimetres to the kilo); a mouse received 25 minims, as a rule, but in four instances 50 minims were injected into these animals. All of the animals lived except one mouse which had received 50 minims; it died in twenty-four hours. The mortality was, therefore: rabbits, nothing; mice, 8 per cent. In addition to these, four other experiments were made on mice with urine taken from women in labor and one with that of the postpartum period. All of these mice recovered. Three other animals, one rabbit and two mice, received injections of urine which was twenty-four hours old; all died. If these experiments be grouped in classes, it will be found that of urine boiled at once and used within twenty-four hours the figures stand: Seven rabbits and nineteen mice experimented upon, of which six rabbits and sixteen mice recovered, a mortality of rabbits 15 per cent; mice, 16 per cent; all animals together, 15 + per cent. Mortality after urine has stood for twenty-four hours, 100 per cent.'"6

The new experiments to which reference has been made were made to test this method. As stated in that paper, "I used unconcentrated urine from seven women, the majority of whom were in the last month of pregnancy, the others in the postpartum period. The results show that fresh, unboiled urine killed

one mouse out of five, or 20 per cent, while fresh boiled urine killed two mice out of nine, or 22 per cent; that the same unboiled urine after standing for twenty-four hours, in cotton-stoppered, sterile flasks, killed all five of the mice, or 100 per cent, while boiled urine which had stood for twenty-four hours in similar flasks killed four out of five mice, or 80 per cent."

The experiments of the early part of 1899 had agreed with those of Forchheimer so closely in regard to mortality that there was good reason to believe that some carelessness in the collection of the urine must have caused the increased mortality in the experiments which are quoted in the preceding paragraph. The writer decided to again test the question, and to include, at Dr. Forchheimer's suggestion, the question of the probable action of bacteria in the production of the poisonous substances which were evidently in the urine. In accordance with this decision and suggestion a new line of experiments was begun in the early months of 1900. The method was along the lines pursued in the more recent work, but differed in the particulars which are mentioned below. The details are: The urine was drawn off by means of sterile catheter into sterile cotton-stoppered Erlenmeyer flasks at about 7:00 o'clock in the morning, the external genitals of the patient having previously been carefully scrubbed with soap and water, then bathed in lysol solution (one drachm to the pint), and finally washed off with sterile water. Especial care was given to the meatus urinarius. Stress was laid upon the instruction that the urine was to be the accumulation of the night as nearly as possible. Only one catheterization was permitted, and the urine was drawn off in nearly equal quantities into two flasks, the contents of one of which were to be immediately boiled. The urine was taken from pregnant and puerperal women. This urine was injected intra-abdominally into white mice in quantities of from fifteen to twenty-five minims to the animal. The greatest care was demanded, that surgical asepsis be observed in all manipulations. An ordinary hypodermatic syringe was used, the needle of which was pointed downward to avoid wounding the liver, heart, or other organ. Boiled and unboiled urine was injected into individual mice on the first, second, and fourth days, or, more definitely, within twelve, thirty-six, and eighty-four hours of the catheterization. At the time of making the injections plate cultures were made on gelatin or agar-agar.

Nine series, or forty-eight experiments in all, were made with

urine taken from seven women. In seven of the series the urine was taken during the last month of pregnancy, and in two from the postpartum period. The women were all healthy, never showed any symptoms of eclampsia nor any evidences of kidney or bladder trouble.

Forty-eight mice were used. Forty recovered and eight died. Of the eight, six died after injections of unboiled, and two after boiled urine. The two last-mentioned mice probably died from causes which had nothing to do with any poisonous properties which the urine may have possessed. One died in five days, undoubtedly from asphyxia, as its air supply was cut off by the inadvertent covering of the jar in which the animal was contained; the other died in ten minutes without convulsive action, probably from injury to some organ. These probabilities are strengthened by the fact that unboiled urine from the same catheterization and used at the same time did not kill the mouse. This explanation is made because if these two mice be included in the tables the mortality rate is $16\frac{2}{3}$ per cent. (8 in 48), while if they be excluded the rate is reduced to $13\frac{1}{3}$ per cent (6 in 46). With this explanation it is thought best to include the animals referred to in all subsequent deductions. The details of the mortality are shown in the following tables:

	First day urine. (3 to 12 hours.)		Second day urine. (27 to 36 hours.)		Fourth day urine. (75 to 84 hours.)	
	Unboiled.	Boiled.	Unboiled.	Boiled.	Unboiled.	Boiled.
Recovered	8	7	5	7	5	8
Died	1	2 (?)	2	0	3	0

If the position which was taken in reference to the two mice that died after injections of boiled urine be tenable, the mortality from boiled urine was nothing, while that from unboiled urine was, first day, 11 per cent; second day, 28.6 per cent; fourth day, 37.5 per cent.

It is an interesting fact that in those cases in which antepartum and postpartum urine was used no essential difference was noted.

Twenty-seven of the mice were used for experimental purposes for the first time, and twenty-one had been used before. Of the former, twenty-four recovered and three died; of the

latter, sixteen recovered and five died. Two of the fresh mice should not be included for reasons already stated—a fact which makes the mortality in fresh mice one in twenty-five, or 4 per cent, while that of mice which were used more than once was five in twenty-one, or nearly 24 per cent. This fact would seem to be conclusive that repeated injections did not produce immunity, did not lessen susceptibility.

Cultures.—The following table shows the number of cultures made, the day upon which they were made, kind of urine used, and whether the culture was made upon gelatin or agar-agar:

	First day.		Second day.		Fourth day.	
	Unboiled.	Boiled.	Unboiled.	Boiled.	Unboiled.	Boiled.
Gelatin	6	6	4	4	4	5
Agar-agar	3	3	3	3	3	3

These cultures were examined in twenty-four and forty-eight hours. The presence or absence of growths is shown in the following tables:

	First day.		Second day.		Fourth day.	
	Unboiled.	Boiled.	Unboiled.	Boiled.	Unboiled.	Boiled.
There were no growths in twenty-four hours.						
Gelatin	6	6	4	4	4	5
Agar-agar	0	2	2	3	1	2
There were growths in twenty-four hours.						
Gelatin	0	0	0	0	0	0
Agar-agar	3	1	0	0	2	1
There were no growths in forty-eight hours.						
Gelatin	4	5	4	4	3	4
Agar-agar	0	1	2	3	1	2
There were growths in forty-eight hours.						
Gelatin	2	1	1	0	1	1
Agar-agar	3	1	0	0	2	1

It will be seen that of the twenty-nine cultures which were made upon gelatin, all were sterile in twenty-four hours, and twenty-four showed no growths even in forty-eight hours; while of the eighteen cultures made upon agar-agar, ten were

sterile in twenty-four hours and nine showed no growths in forty-eight hours. Whether this greater disposition on the part of the latter substance to develop colonies was due to faulty preparation or to its being a better culture medium cannot be determined by anything in this work. The probabilities are that there was less care exercised in drawing the urine which was used in these series than in the gelatin series, because, of the six deaths which were fairly attributable to poison in the urine, four occurred in the agar-agar series. This receives some confirmation from the fact that in the agar-agar series boiled and unboiled urine showed a nearly equal proclivity to the development of colonies, whereas in that series in which gelatin was used unboiled urine showed a much greater tendency to the development of colonies than did the boiled urine.

No difference in the development of colonies could be discovered between the urine taken ante partum and that taken post partum; but not much stress can be laid on this fact, as there were but two patients whose urine was so taken.

Cause of Death.—A careful postmortem examination, which included the blood, was made upon each mouse. The following table shows: number of case; amount of urine injected; cause of death; whether urine was unboiled or boiled; from which day urine was taken; sterility or infection of urine at time of death; and time in which death occurred:

1	15 minims.	Inanition...	Boiled....	First day...	Sterile.....	5 days....
2	24 "	Septicemia.	Unboiled	Fourth day.	"	36 hours...
3	20 "	Injury (?).	Boiled...	First day...	"	10 minutes.

These three specimens were from the same patient. Nos. 1 and 2 were taken nine days before delivery, and No. 3 twelve hours after delivery:

4	25 minims.	Septicemia.	Unboiled.	First day...	Numerous colonies.	17 hours.
5	25 "	"	"	Second day.	(Sterile 24 12 "	
					hours; numerous colonies third day)	
6	20 "	"	"	Fourth day	" Loaded " in 12 "	
					24 hours.	

These specimens were all taken about six weeks before deliv-

ery, from the same patient. Two control experiments were made from urine taken from the same patient at the same time, but which was not used until the fourth day. Both mice recovered, although the unboiled urine showed 200 (?) colonies and the boiled urine was sterile:

7	25 minims.	Septicemia	Unboiled.	Second day.	Loaded in 48 hours.	18 hours.
8	20 "	"	"	Fourth day	Loaded in 24 hours	24 "

These specimens were taken from same patient less than four weeks before delivery.

In not one of these mice was there any macroscopic evidence of peritonitis or injury to the abdominal organs. In Nos. 1 and 3 nothing was found microscopically in the blood. These are the mice whose deaths were attributed to inanition and injury, respectively, as has already been explained. In No. 2 rather large bacilli were found in the blood; in No. 4 small ovoid bacilli were present; in Nos. 5 and 6 the bacilli were large; in Nos. 7 and 8 diplococci were found.

Unboiled urine was injected in all those cases of death in which septicemia was diagnosed, or in which micro-organisms were found in the blood, and it therefore is a fact of considerable significance that the boiled urine, which was drawn at the same time as the unboiled and which was injected at the same time, did not kill in a single instance.

As far as could be ascertained, none of these mice had convulsions before death. This is largely surmise, however, because in most cases the animals were found dead. In the few cases in which the death struggle was observed no convulsions occurred.

If all of this work be taken in review it will be seen that urine collected—that is, passed by patient over boric acid—evidently contains a convulsive poison which is deadly, in 100 per cent of the cases, to rabbits and white mice, whether the urine be concentrated or unconcentrated; that when the urine is drawn by catheter, under strict surgical asepsis, the mortality is greatly reduced, and that when the urine is so drawn and immediately boiled the mortality is practically nothing. This contrast at once suggests the possibility of error in the deductions which have been drawn by investigators who have used the boric-acid method—a method which has undoubtedly been

followed when the urine is sent from any distance, or has been allowed to stand two, three, or four days before use for experimental purposes.

Even in the writer's work asepsis plays the important rôle, because in the early part of 1899 the manipulations were made practically under his supervision and the mortality was reduced to 16 per cent, while in the latter part of the same year the drawing of the urine was not done by his own assistants, consequently could not be so carefully supervised, and the mortality rose to much greater proportions. The experiments of 1900 were again under his direct care, and the mortality fell again to the figures of the early part of 1899. Forchheimer's individual work confirms this statement.*

The relation of mortality to sterility or infection of the urine at the time of the death of the animal is very interesting.

The table shows that two specimens of boiled urine which were sterile at time of injection and remained sterile afterward killed mice—the two which have been excepted throughout these tables; two specimens of fresh urine showed no growths in twenty-four hours, but developed numerous colonies in the succeeding days; three specimens of fresh urine were contaminated within twenty-four hours, and one in forty-eight hours. In other words, all of the fresh urine which killed mice must have contained micro-organisms at the time of the injection, and in every case septicemia or the presence of bacilli could be demonstrated in the blood. It is reasonable to suppose that these organisms either existed in the blood of the mothers, in their bladders, or were introduced into the urine during the manipulations. The women were all healthy, had no fever nor any other systemic disturbance, no anorexia nor local deviation from the normal, and consequently could not have had blood so saturated with bacilli as to infect the urine. The absence of epithelium, albumin, blood and pus cells, and the freedom from pain on urination, prove there was no cystitis. As the source of contamination there are left then only the manipulations. This position is strengthened by the fact that the septicemia could not have been due to the presence in the blood of these animals of bacilli which only became virulent because of the injection, for the simple reason that numerous other animals

* Dr. Allan Ramsay did the bacteriological part of this work and materially assisted in the rest of it. I hereby return him my thanks for both.

had been kept in cages with the ones which died, had gone through the same process of experimentation, and yet recovered. Therefore it seems to the writer that any other view of the cause of death than infection of the urine at the time of catheterization or during some of the subsequent manipulations would be illogical and strained.

Not that the writer means to imply that imperfect oxygenation of food, or tissue metamorphosis with consequent production of uric acid, carbamic acid, paraxanthin and the xanthin bodies generally, may not mean the poisoning of the system, as has been claimed by so many distinguished authorities. Nor is he willing to say that these substances are not thrown out of the system by the kidneys. Above all, he does not wish to be understood as claiming that bacteria are the sole cause of death in the animals which have been used by other experimenters.

At the same time one cannot deny that, as far as the present work goes, there is good reason for believing that what has heretofore been attributed to poisons generated in the human body was often due to micro-organisms which must have been introduced into the urine after it was voided. The one claim which Forchheimer and the writer do make is that the methods, and consequently the deductions, of other experimenters are open to serious objection, and that the intra-abdominal injection of urine which has been drawn by catheter under strict asepsis is freer from objection than the intravenous method.

Finally, while the writer is diffident in claiming too much for the effect which bacteria may produce in this line of work, it is a significant fact that in his own cases 75 per cent of the deaths cannot be attributed to any other cause than bacteria.

FOURTH AND SYCAMORE STREETS.

LITERATURE.

¹ VOLHARD: *Monatschr. für Geb. u. Gyn.*, Bd. v., 1897.

² LUDWIG U. SAVOR: *Monatschr. für Geb. u. Gyn.*, Bd. i., 1895.

³ TARNIER ET CHAMBRELENT: *Soc. de Biol.*, 1892, No. 44.

⁴ BOUCHARD: *Autointoxication*.

⁵ STEWART: *AMERICAN JOURNAL OF OBSTETRICS*, 1897, vol. xxxv., No. 3.

⁶ STEWART: *Ibid.*, 1899, vol. xl., No. 3.

ON PROLONGED PREGNANCY; REPORT OF A CASE,
AND COMPILATION OF SIXTY-ONE WELL-AUTHENTICATED
CASES OF THIS KIND.

BY

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IN an exceedingly interesting and instructive monograph¹ F. von Winckel has gathered together statistics from his thirty years' experience in charge of the University Clinics at Dresden and Munich, and brought to light some very striking facts concerning the duration of pregnancy and its relation to the weight of the child. These statistics are based on a total of 30,500 births, in 1,007 of which the children weighed over 4,000 grammes. It is the study of these 1,007 cases that Von Winckel dwells upon in his article. In over one-fourth of them he could ascertain exactly the last day of menstruation, or the last day of cohabitation before cessation of menses, or of both. Of these, 31 cases (11 per cent) showed a prolongation of pregnancy from 302 to 322 days. In the last portion of his paper Von Winckel takes up in particular a review of all the reliable cases of partus serotinus previously reported.

Before considering in detail the views of Von Winckel and other men on this subject, I should like to report a case of this kind that came under my care at the Female Hospital here. It is unusually fortunate that the woman was under the observation of the hospital for three successive confinements extending over a period of about three years. Thanks to the former superintendent, Dr. H. S. Crossen, all cases of pregnancy at the hospital since his time have been noted according to a definite scheme, and it is owing to this fact that I am now able to give a fairly complete history. If I give it with apparently needless detail, it is because of the advice of Von Winckel as to future reports: "The more carefully each case is observed the more convincing does it become."² We have had scores of reports by letter, in society meetings, etc., of prolonged pregnancy,

¹ Volkmann's klinischer Vorträge, Nos. 292, 293.

² Loc. cit., p. 32.

and I do not doubt that a large number of these actually occurred, but they must remain absolutely valueless from a scientific standpoint because so many important data are missing.

E. M., housewife, aged 27 years, married, entered the hospital February 11, 1897. She had never been seriously ill in her life, but two years ago had been overheated and since then suffered from "smothering spells." Her menses began when 13 years of age, were always regular, of normal duration (three to four days), and painless. She had had five children and one abortion, as follows: first, seven years ago, boy, living and healthy; second, six and one-half years ago, abortion at two months' gestation, probably due to a fall; third, five and one-half years ago, boy, living and healthy; fourth, four years ago, boy, living and healthy; fifth, two and one-half years ago, girl, died at three months of digestive trouble; sixth, one and one-half years ago, boy, died at two weeks of pneumonia. No instruments were used in any of these births; in fact, the patient said they usually did not last very long. Nothing was ascertained as to the duration of these pregnancies or the weight of the children at birth.

The patient was in person very stout and short, weighing 256 pounds and 5 feet $\frac{1}{4}$ inch tall. In temperament she was extremely phlegmatic. Contrary to the usual custom, she was never helping in the wards, but almost invariably was sitting down or lying in bed doing nothing. Her pelvic measurements, taken with difficulty owing to obesity, upon this and later occasions, were: Dispinous diameter, 30; diacrestic, 34; ditrochanteric, 33; diameter Baudeloeque, $23\frac{1}{2}$ -25. The abdominal walls were very pendulous.

Physical examination revealed an eight and one-half months' pregnancy. Patient gave May 15, 1896, as the last day of her menses; fetal movements felt four and one-half months later. The greatest circumference of the abdomen was 58 inches, and the height of the fundus above the umbilicus 8 inches. On February 16, five days after entering the hospital and 277 days after her last menstruation, pains began and in three hours and ten minutes both child and placenta had been expelled. The child's face presented, M. L. A. Normal puerperium. The child, a girl, weighed 4,550 grammes at birth. The head measurements were: Biparietal diameter, 10; bitemporal, $8\frac{1}{2}$; occipito-mental, 13; occipito-frontal, 12; suboccipito-bregmatic, $8\frac{1}{2}$; circumference (occipito-frontal), $35\frac{1}{2}$ centimetres. Child died

of broncho-pneumonia twenty days later. Mother left hospital March 8, 1897.

August 22, 1898, patient returned. She said she had had her menses regularly after the death of her child until December 7, 1897. Since then she had not had them. On examination the abdominal circumference at this time was found to be 58 inches; when measured October 15, seven and one-half weeks later, it had grown to 61 inches (three-fourths of an inch more than the woman's height!). The fundus uteri at this time stood 10 inches above the umbilicus; later it had risen to 12½ inches above. Toward the end of September, when it was time for her to be confined, the patient complained occasionally of pains in the abdomen and backache, but without dilatation of the cervix. October 2 the patient left the hospital, but returned again October 14. At this time the fetal heart could be heard in the left lower quadrant, 132 beats per minute, but vaginally no fetal part could be felt in the pelvis.

At 3 A.M., October 26, 323 days after the beginning of her last menstruation, pains began. At 5:05 A.M. the cervix was obliterated and membranes ruptured. The head entered the pelvis O. L. A.; it was quickly born, but the shoulders were only extracted with great difficulty. The placenta was delivered at 5:50 A.M., five minutes after the birth of the child. The child, a boy, weighed at birth 5,625 grammes and was 57 centimetres long. The head measurements were: Biparietal diameter, 11 centimetres; bitemporal, 9½; occipito-mental, 13½; occipito-frontal, 13; suboccipito-bregmatic, 11; occipito-frontal circumference, 38½ centimetres. The shoulder measurements were not taken, but must have been considerably larger than the head, owing to the difficulty of extraction. The child developed an inspiration pneumonia, resulting in death sixteen days later. Normal puerperium. Five weeks after delivery patient, again menstruating, left the hospital.

January 6, 1899, returned with a cough and pains in chest. Diagnosis, bronchitis. Left in two weeks improved. Urine normal.

August 3, 1899, having missed her menses since February 17 of that year, again entered the obstetrical division. She stayed but two weeks. Returned October 31. At this time greatest abdominal circumference was 56 inches, height of fundus above umbilicus 7½ inches. Frequent attacks of dyspnea when in the recumbent position. General health distinctly poorer. On

November 29, 285 days after last menstrual period, labor set in. Pains ineffective, and twelve hours later, although the cervix was completely dilated and membranes ruptured, the presenting part, the breech, had not entered the pelvis. Maternal pulse grew rapidly bad, lips cyanotic, so manual extraction of the child was begun. With considerable difficulty the feet were brought down one at a time, and the after-coming head delivered by forced flexion. The child, a girl, died sub partu. It weighed 5,110 grammes and was 55 centimetres long. The head measurements were: Biparietal, 9.5 centimetres; bitemporal, 9; occipito-mental, 13; occipito-frontal, 12; suboccipito-bregmatic, 11; occipito-frontal circumference, 36 centimetres. Placenta manually extracted. The mother's pulse grew worse after delivery. In spite of cardiac stimulation she died suddenly one hour after the birth of the child. Postmortem revealed severe dilatation of the heart, myocarditis parenchymatosa, lipomatosis cordis. Uterus intact, extending to umbilicus, contained a few decidual shreds. The case, besides its interest as to the three children, is thus another example of the dangers of the postpartum stage in cases of cardiac disease.

In reviewing the important features of the case it will be noted that in all three pregnancies the child weighed ten pounds or more, and that in each case the weight of the children was to a certain extent in proportion to the duration of the pregnancy: first case, weight 4,550 grammes, duration 277 days; second case, weight 5,625 grammes, duration 323 days; third case, weight 5,110 grammes, duration 285 days. Of greatest importance is, of course, the prolongation of pregnancy in the second case to 323 days. In support of the correctness of this calculation it will be observed that the woman was married, had passed through a number of pregnancies, and so had learned to observe its occurrences. She had always had her menses regularly except when pregnant. In each case she was able to give the *exact day* of her last menstruation. Furthermore, it is noteworthy that the last four children died at an age under three weeks, so that there could be no amenorrhea through lactation. In fact, in one case the return of normal menstruation was noted at the hospital five weeks after the birth of her child. I consider the menstrual history in this case, therefore, unusually reliable. Still, as the exact day of cohabitation or of fetal movements could not be ascertained, I would not venture to class this case among those of prolonged labor, were it not for the weight

and size of the child. Both Neugebauer and Von Winckel lay stress upon this point. The former¹ says: "An abnormal development, small fontanelles, closed sutures, weight up to 14 pounds, etc., speak in favor of the assumption of prolonged pregnancy." Von Winckel² goes even further. He excludes in his classification of 11 cases of prolonged gestation all those in which the child's weight was not excessive. Duncan³ also says: "The acknowledged absence, then, of this extraordinary intrauterine development is a strong evidence against the reality of the great mass of so-called cases of prolongation." Finally, Olshausen has also come to the same conclusion. In the 1893 edition of his "Lehrbuch"⁴ he said: "Denn aus der Rechnung allein, nicht aus dem Aussehen des Kindes kann man die Spätgeburt bestimmen"; but in the 1899 edition this is changed to: "Denn nur die Rechnung der Frau in Verein mit dem Aussehen des Kindes kann die Spätgeburt bestimmen," and later on he adds: "Als sicheren Beweis sehen wir an, wenn wie auch in dem oben erwähnten Fall (Rigler) der objective Befund am Kind genau der Anamnese übereinstimmt."

Turning now to study the etiology of this condition, we are, owing to the variety of such cases as have been accurately reported, left with but few footholds. From statistics in a large number of normal pregnancies Issmer⁵ has, however, made observations that may throw some light on this subject. Among the important influences prolonging pregnancy he finds:

1. *The number of previous pregnancies.* The duration of the pregnancy increases with each child until the ninth one; then there is again a decrease.

2. *The age of the mother.* Every pregnancy up to the thirty-fifth year of the mother's life is four to five days longer than the previous one.

3. *Heredity.* Statistics scarce and unreliable.

4. *Social condition, or rather rest during pregnancy.* Pinard found that of 1,000 pregnancies among working women 51 per cent were concluded before 280 days had elapsed, whereas of 1,000 women without active occupation only 34 per cent were

¹ Neugebauer: Fremdkörper des Uterus, p. 115.

² Loc. cit., p. 25.

³ Duncan: Monthly Journal of Medicine, 1854, p. 230.

⁴ Schröder: Lehrbuch der Geburtshülfe, p. 532.

⁵ Issmer: Ueber die Zeitdauer der menschlichen Schwangerschaft. München, Mayer, 1889, S.-A. pp. 65, 66.

delivered before 280 days. "These figures," says Von Winekel,¹ "prove sufficiently the beneficent influence of rest upon the prolongation of pregnancy." Further evidence of the same kind is found in the statistics of women who have been vaginally examined. Such women are on an average confined 5.2 days sooner than those not examined.

5. *Constitution of the mother.* Issmer found the average duration of pregnancy in 912 strong women 278.6 days; in 288 weak ones, 276.8 days.

Others who have studied the etiology of prolonged pregnancy have in part come to similar conclusions.

Thus Pürkhauer considers rest in bed for months, slight fetal movements and smallness of stature on the part of the mother, as factors in his case. Rigler thinks very fat and phlegmatic mothers are more apt to carry their children longer. Brosin's case was that of a very fat, strong woman who had previously had a large child. Martin lays stress on the fact that in his case the mother rested during the entire pregnancy. Harris considers previously large children as predisposing. Narrow pelvis is mentioned as possibly a factor in the cases of Stahl, Sprenkel, and Loewy. Other factors mentioned are anencephalus, loss of blood, etc. It is striking how many of these points coincide with the conditions in my case. The mother was, at the time of this pregnancy, an VIIIpara and 28 years old. She was of short stature (60¼ inches), of phlegmatic temperament, and very fat (256 pounds). A previous child and one succeeding one were very large. The most essential feature to my mind, however, was the state of rest during this pregnancy. During the other two pregnancies observed here she entered the hospital a short time previous to confinement, and in the last one in particular her general condition was so poor, owing to her heart trouble, that she obtained little rest. In contrast to this, during the pregnancy that was prolonged (with the exception of twelve days) she remained in the hospital more than two months previous to her delivery. When we consider the fact that at home she had her family duties, including three children (boys at that!), to worry her, and that here in the hospital she had absolute quiet and rest with nothing to do, I believe we have come upon a very plausible reason for the delayed birth.

Possibly, too, the child may play some part in causing this prolongation. To consider the abnormal size of the child as a

¹ Loc. cit., p. 6.

cause would be likely to lead one to error, since it is certainly, in part at least, rather a result of this condition and since we consider its occurrence as essential to the diagnosis of prolonged pregnancy. The sex of the child, however, cannot be excluded from consideration for these reasons, and here we find some rather striking figures. It has been generally observed that large children were more often male, but until the present work of Von Winckel the matter had never been carefully studied upon a large material. He found not only that in 1,007 children of over 4,000 grammes in weight the male sex was two and one-fifth times more frequent than the female, but also in his compilation of 31 cases of prolonged pregnancy of over 300 days' duration 27 were boys and 4 girls. A similar relation exists in his table of *Spätgeburt* observed by others. Of 9 cases but one was a girl. It would certainly seem, therefore, as far as the present material goes, that the male sex of the child predisposes to prolonged pregnancy, or that the same factors that predispose to the formation of the male sex predispose to the prolongation of pregnancy. Finally, the presentation of the child is almost invariably a vertex presentation. Breech cases are about half as frequent as usually. Striking, too, has been the frequency of abnormally large shoulder development in these children. Besides my case there are those of Bensinger, Brosin, Harris, and Wehl. This, together with the fact that in a rather large number of cases the children are anencephalus (Wigodsky, Puppe, Wehl), leads one to the thought that the distribution of the weight of the child may be responsible in some way for prolonged gestation. How this takes place, whether an absence of the direct pressure of the head upon the lower uterine segment or not, would be difficult to explain, especially as long as we are still ignorant of the causes of the onset of labor.

Reports of cases of partus serotinus date back several centuries, or even longer. In the eighteenth century Schutzen (1778) and Schnobel (1786) in Germany, and Louis (1764) and Le Bas (1765) in France,¹ reported cases. In England Simpson² in 1853 emphasized the not infrequent occurrence of this condition and mentioned four cases of his own observation where pregnancy lasted 336, 332, 324, and 319 days respectively. In our own country Dewees³ observed prolonged pregnancy in

¹ Catalogue U. S. Surgeon-General's Library: "Pregnancy Prolonged."

² Simpson: Monthly Journal of Medical Science, July, 1853, p. 51.

³ Parvin: Science and Art of Obstetrics, p. 219.

four of his patients. But only in the last half of the previous century do the reports become sufficiently complete to be trustworthy. If I attempt now to give a short compilation of the well-authenticated cases of *partus serotinus* that have been reported, I hope it will kindly be remembered that the literature on this subject has been scattered about in the most remote corners, among society proceedings, letters to the editor, etc. So it is quite possible that I have omitted a few cases. If I have attempted the work it has been because previous lists have been absolutely inadequate. Neugebauer's list of 36 cases¹ omits a large number of the most reliable cases (Stahl, Dührssen, Loewy, and others) and includes others that have no scientific value owing to insufficient data (Stuart, Fitzgerald, Queirel, Neugebauer, etc.). Von Winckel's list of eleven cases is also insufficient. He includes cases (Eberhardt, Riedinger) in which pregnancy up to the death of the child did not last over 295 days, and leaves out about twenty other reliable cases. The greatest difficulty in such a compilation lies, of course, in the definition of *partus serotinus*. Some, like Von Winckel, lay greatest stress on the excessive weight of the child. Others, like Puppe,¹ consider this of minor importance and say that the last day of cohabitation should be the guiding point. I have tried in my compilation to observe a median course, as recommended by Olshausen, Duncan, and others, and have selected such cases, accurately reported, in which the development of the child corresponded with the data on the part of the mother. I have hence excluded from my list those cases:

1. In which the child was not born living or recently dead (*frisch todt*), as in the cases of Resnikow, Rissmann, and Riedinger.

2. Where the child weighed less than 4,000 grammes or the pregnancy was not prolonged over 300 days, as in the cases of Eberhardt, Greslon, Sarvey (*Missgeburt*, 700 grammes), Murray, Wilson, Szaszy, Lomer.

3. Where the data were given from memory (Brouardel, Oppenheimer, Neugebauer, Erskine, Stuart) or were not given with sufficient exactness (Blake, Piepero, Fitzgerald, Ebell, Jaffé, Rossie, Duff, Acker, Ingleby-Mackenzie, Rachel, Macan, Gardner, Queirel, Cordes, Solman, Huber, Henderson, Barnouw, Kouwer, Loviot, Moker, Mueller, Thompson).

¹ Loc. cit., pp. 116-118.

² Zeitschrift für Medicinalbeamte, 1891, p. 10.

The degree of reliability, of course, varies with each case. The most convincing of all to my mind is that of Bensinger, where the diagnosis of pregnancy was made one month after conception. Pregnancy lasted 336 days, the child's weight and measurements corresponding with this time.

I have divided the cases in my list into two groups, depending on the weight of the child and the duration of the pregnancy. In Group A I have included those cases in which not only did pregnancy last over 310 days, but in which the child's weight also was 4,500 grammes or more. Where *both factors* are as excessive as in these cases there can be absolutely no doubt as to a prolongation. In Group B I have included those cases that, while well authenticated, did not show such excessive prolongation and weight.

GROUP A.

1. Baketel, H. S. (*New York Med. Rec.*, vol. lli., p. 159). From the time of patient's last menstruation up to delivery of child was 316 days. The child at birth weighed 5,200 grammes. Its head measured three-fourths of an inch larger than normal in every dimension.

2. Bensinger, M. (*Centralbl. für Gynäkologie*, 1893, p. 816). Patient a IIIpara, 27 years old, last menses August 10. Diagnosis of pregnancy made in September. Child born July 12, 1893, a boy, weighing 6,000 grammes, length 58 centimetres, head circumference 40.5 centimetres, shoulder circumference 43 centimetres. Shoulder extraction difficult. Duration of pregnancy, 336 days.

3. Bronsin (*Zeitschr. für Geb. u. Gyn.*, vol. xv., p. 285). Patient VIpara, very fat, last menses July 17, 1887, fetal movements January 5-6, 1888. Child born June 4, 1888, boy, weight 5,770 grammes, length 60 centimetres, head circumference 41 centimetres, shoulder diameter 17 centimetres. Shoulder extraction difficult. Placenta contained calcium deposits. Duration of pregnancy, 321 days.

4. Harris, J. B. (*Lancet*, July 30, 1892). Patient VIpara, last menses July 17, 1891. Child born June 7, 1892, girl, weight 6,355 grammes, length 67.6 centimetres. Two previous children weighed over 12 pounds. Duration of pregnancy, 326 days.

5. Loewy (*Wiener klinische Wochenschr.*, vol. xii., p. 192). Last menses September 15, 1890, fetal movements middle of February. Child delivered August 9, 1891. Narrow pelvis;

diagonal conjugate 10 centimetres. Forceps, then cranioclast. Child a boy, weight 7,000 grammes, length 64 centimetres. Duration of pregnancy, 327 days.

6. McTavish, D. A. (*New York Medical Journal*, vol. xlix., p. 413). Patient married, 26 years old, last menses April 7, 1888, vomited in June, fetal movements August 22. Child born February 18, 1889, girl, weight 12½ pounds (5,685 grammes). Os dilated to size of a quarter for two weeks previous to delivery. Duration of pregnancy, 318 days.

7. Martin, A. (*Zeitschr. für Geb. u. Gyn.*, vol. i., p. 44). Patient IIpara, 38 years old, last menses June 12, 1874. Child born April 19, 1875, boy, weight 7,170 grammes, delivered with cephalotripter. Patient lying in bed during most of pregnancy. Duration, 311 days.

8. Rigler (*Monatschr. für Geburtsh. (Credé)*, vol. xxxi., p. 321). Patient, a IIpara, 28 years old, last menses December 7, 1866, fetal movements middle of May. Child born October 14, 1867, boy, weight 4,660 grammes (10¼ pounds), length 19½ inches. Placenta contains calcium deposit. Duration of pregnancy, 311 days.

9. Rosenfeld (*Wiener med. Presse*, 1885, p. 1094). Primipara, very large, last menses February 10, 1894. Child born December 16, boy, weight 5,730 grammes, length 59 centimetres. Cranioclast used. Duration of pregnancy, 311 days.

10. Taussig, F. J. (see accompanying record). Patient VIpara, 26 years old, last menses December 7, 1897. Child born October 26, 1898, boy, weight 5,625 grammes, length 57 centimetres. Shoulder extraction difficult. Other children large. Duration of pregnancy, 323 days.

11. Sprengel, W. F. (*AMERICAN JOURNAL OF OBSTETRICS*, vol. xxxiv., p. 846). Patient Vpara, 40 years old, last menses June 12, 1895, fetal movements about November 1. Child born April 27, 1896, boy, weight 5,280 grammes, length 55 centimetres, head circumference 40 centimetres. Porro operation. Duration of pregnancy, 320 days.

12. Sprengel, W. F. (*Ibid.*). Patient IVpara, 42 years old, last menses November 20, 1895, fetal movements February 15, 1896. Child born August 3, 1896, boy, weight 5,512 grammes, length 56 centimetres, diameter of shoulders 20 centimetres. Narrow pelvis, conjugata vera 8.5. Cranioclast. Duration of pregnancy, 312 days (according to Ahlfeld's method).

13. Wehl (*Zeitschr. für Medicinalbeamte*, 1896, p. 66). Pa-

tient Vpara, 38 years old, last menses August 29, 1894, fetal movements January, 1895. Child born August 3, 1895, anencephalus, weight 4,500 grammes. Pains for the last two months of pregnancy. Delivery of shoulders very difficult. Duration of pregnancy, 339 days.

14. F. Von Winckel (*Volkmann's klin. Vorträge*, No. 292, pp. 18, 19), No. 173, IIpara, 26 years old, last menses June 20, 1888, last day of cohabitation June 25. Child born May 5, 1889, boy, weight 4,540 grammes, length 55 centimetres. Duration of pregnancy, 320 days.

15. Same (*Ibid.*), No. 223, Ipara, 20 years old, last menses March 27, 1890, fetal movements August 20. Child born February 4, 1891, girl, weight 4,750 grammes, length 58 centimetres, head circumference 39 centimetres. Duration of pregnancy, 315 days.

16 Same (*Ibid.*), No. 277, IIIpara, 23 years old, last menses November 13, 1891, fetal movements end of April. Child born September 30, 1892, boy, 4,500 grammes in weight, length 55 centimetres. Duration of pregnancy, 322 days.

17. Same (*Ibid.*), No. 527, IIpara, 28 years old, last menses June 12, 1898. Child born April 21, 1899, boy, weight 4,700 grammes, length 54 centimetres. Duration of pregnancy, 314 days.

It will be noticed that in these 17 cases of Group A the duration of pregnancy varies between 311 and 339 days, with an average of 320+. The weight of the children varies between 4,500 and 7,470 grammes, with an average of 5,480. or *over twelve pounds*. In two cases the sex was not given: of the other 15 children, 12 were boys and 3 girls.

GROUP B.

18. Dührssen (*Zeitschrift für Geb. u. Gyn.*, vol. xvi., p. 305). Patient IIpara, last menses May 4, 1888. Last coitus May 8, 1888. Child born March 3, 1889, weight 4,100 grammes, 55 centimetres long, shoulders 15 centimetres wide, head circumference 37 centimetres. Duration of pregnancy, 303 days.

19. Duncan, J. M. (*Monthly Journal of Medicine*, 1854, p. 230). From day of last menses till delivery of child was 308 days. Child weighed 10 pounds 4 ounces (4,670 grammes). Placenta weighed 2 pounds.

20. Faneon (*Semaine Médicale*, 1892, vol. xii., p. 386). From last menstruation to delivery of child, 301 days. Child weighed

11½ pounds (5,230 grammes). Pelvis rachitic, position of child transverse.

21. Hayes (*AMERICAN JOURNAL OF OBSTETRICS*, vol. xxviii., p. 794). Last menses on May 6, 1892. On August 26, diagnosis of pregnancy in *third* month; fetal movements *middle of November*. Child born May 30, 1893, weight 9 pounds (4,100 grammes). Duration of pregnancy, according to Ahlfeld's method, 331 days.

22. James, W. S. (*New York Medical Journal*, vol. 1., p. 343). From day of last menses until delivery, 308 days. False pains on the 287th day. Child weighed 10 pounds (4,550 grammes). Delivered by forceps.

23. Krueche (*Deutsche medicinale Zeitung*, 1883, p. 370). Duration of pregnancy, according to Naegele's method, 330 days. But husband did not return until July 30, from which time pregnancy should be counted, thus only 304 days. Weight of child, 4,250 grammes.

24. Lutz (*Baeyr. aerztl. Intelligenzblatt*, 1879, No. 44; ref. in *Centrl. für Gyn.*, 1880, p. 72). Vpara, child transverse with prolapsed cord. Version difficult. Child died sub partu, weight 4,500 grammes, 58½ centimetres long. Duration of pregnancy, 308 days.

25. McDonald, K. N. (*British Medical Journal*, 1883, vol. xi., p. 14). Patient IIpara, stout, aged 28, last menses August 16, 1882, fetal movements shortly after Christmas. Child born June 20, 1883, weight 12 pounds (5,460 grammes), length 22 inches, circumference of head 14 inches, and shoulders 15 inches. Duration of pregnancy, 308 days.

26. Maus, M. (*New York Medical Journal*, 1889, p. 519). Last menses May 17, 1888, fetal movements September 17. Child delivered April 14, 1889, weight 9 pounds (4,100 grammes). Duration of pregnancy, 332 days.

27. Nilson, J. R. (*AMERICAN JOURNAL OF OBSTETRICS*, 1892, p. 692). Duration of pregnancy from last menses until delivery of child, 300 days. The child at birth weighed 6,370 grammes (14 pounds).

28. Pürkhauer (*Friedrich's Blätter*, vol. xli., p. 191). Last menses April 28, 1889, fetal movements last half of September. Child born March 13, 1890, boy, weight 4,000 grammes, length 53 centimetres. Duration of pregnancy, 320 days.

29. Puppe (*Zeitschr. für Medicinalbeamte*, 1891, p. 10). VIpara, 30 years old, last menses December 19, 1887. Day of con-

ception about December 30; fetal movements middle of May, 1888. On December 13 no longer felt fetal movements. On December 22 child born, anencephalus, 3,762 grammes in weight, 52 centimetres long. Duration of pregnancy until death of child, 348 days.

30. Ross, F. (*Australian Medical Gazette*, 1896, p. 281). Menses appeared several times during pregnancy. Fetal movements positively felt by physician 227 days previous to delivery of child. Allowing a minimum of 84 days before the appearance of this sign would make duration of pregnancy 311 days. Child weighed $9\frac{1}{2}$ pounds (1,300 grammes).

31. Sarwey (*Archiv. für Gynäkologie*, 1893, p. 162). Ipara, last menses August 1, 1891. Child born May 29, 1892, boy, with long hair, both fontanelles closed, 4,500 grammes in weight, 58 centimetres long. Placenta contained calcium deposits. Duration of pregnancy, 303 days.

32. Silberstein (*Wiener med. Presse*, 1879, p. 943). Last menses July 18, 1878. Child born May 28, 1879, weight 9 pounds (1,100 grammes), head periphery 36 centimetres. Manual extraction of breech. Previous child very large and carried over-time. Duration of pregnancy, 313 days.

33. Stahl, F. (*AMERICAN JOURNAL OF OBSTETRICS*, vol. xxxi., p. 842). Patient Vpara, last menses March 15, 1894. Child born January 11, 1895, weight 5,680 grammes ($12\frac{1}{2}$ pounds), length 56 centimetres, head circumference 41 centimetres. Narrow pelvis, extraction by version. Duration of pregnancy, 302 days.

34. Wigodsky (*Medic. Obscrv.*, 1896, No. 2; ref. *Centralblatt für Gyn.*, vol. xxi., p. 144). IIIpara, 28 years old, duration of pregnancy 340 days. Child born living, anencephalus, very large, diameter of shoulders 18 centimetres, weight not given.

35-61. Von Winckel (*Loc. cit.*, pp. 18-19). Cases Nos. 11, 37, 66, 118, 141, 151, 165, 167, 196, 212, 217, 231, 233, 281, 328, 330, 331, 332, 382, 393, 415, 431, 452, 477, 528, 544, and 558. In all of these cases pregnancy was prolonged over 300 days and the child's weight varied between 4,000 and 5,100 grammes.

In Group B there are 44 cases in all, 27 of which are from the list of Von Winckel. Here the average duration of pregnancy was 311 days, varying between 300 and 348; the average weight of the children was 4,345 grammes, varying between 4,000 and 6,370 grammes. I have included the cases of Puppé and Wigodsky in this list because the children were anencephalous and a corresponding allowance had to be made for their weight.

In this total of 61 reliable cases of partus serotinus we have a mass of evidence that should make even the most conservative acknowledge that this condition occurs in the human race, just as it has long since been proved to occur in the lower animals. I refer in particular to such sceptics as Kleinwächter, who as recently as 1899¹ declares: "An Verlängerung der Schwangerschaft über die normale Dauer glaube ich nicht." It is strongly to be hoped that the careful report of Von Winckel will stir up the large clinics of Europe and America to make similar reports upon this most interesting and important subject.

2318 LAFAYETTE AVENUE.

TORSION OF A HYDROSALPINX RESULTING IN INFARCTION.

BY

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TORSION of the Fallopian tube of a grade sufficient to produce pathological changes and marked clinical symptoms is a very uncommon occurrence, especially when the tube alone is affected. The following case, however, presents a typical picture.

N. H., æt. 46, white, married, was admitted to the gynecological service of Lakeside Hospital November 18, 1899, suffering from severe pain in the right side and lower abdomen, which began suddenly the day before admission; nausea, difficulty in micturition, and extreme tenderness in the lower abdomen.

The family history was negative. With the exception of the usual diseases of childhood, patient has always been perfectly healthy and has never had any attacks similar to the present one.

Menstruation began at 16, always regular, and painful before marriage, but not since; duration one week; the last period occurred one week previous to admission. Patient has had two miscarriages, the last twelve years ago, convalescence in both instances being uninterrupted. No viable child has been born. No history of previous pelvic inflammation could be elicited.

Upon examination of the pelvis the uterus was found to be in retroposition, somewhat enlarged, movable and sensitive; the os uteri externum was quite patulous. Apparently in front of the

¹ Eulenburg: Realencyclopädie der Ges. Heilkunde, vol. xxii., p. 96.

uterus was a rounded, fluctuant, sensitive mass about the size of a baseball; behind and to the right was an ill-defined, smaller, sensitive mass. A provisional diagnosis of right ovarian cyst was made. The examination was unsatisfactory on account of the extreme sensitiveness of the parts.

The temperature on admission was 100° F., pulse 100, respiration 24. The urine showed a trace of albumin with a few hyaline and granular casts. The patient presented symptoms of a localized peritonitis, which subsided under palliative treatment. On November 23, five days after admission, abdominal section was performed by Dr. Hunter Robb. The examination under anesthesia just before operation showed that the uterus was of moderate size and movable; the fundus was directed forward and toward the right side; to the right of the uterus, and movable independently of it, was a fluctuant mass, the size of an orange, suggesting an ovarian cyst. The left ovary seemed small and movable.

An incision was made in the median line and an adherent hematosalpinx, the size of the closed fist and blackish red in color, was found on the right side of the pelvis. The pedicle formed by the mesosalpinx showed two complete twists. The ovary was adherent, but was otherwise unaffected. The adhesions having been separated, the tube and ovary were ligated with silk; they were then removed and the pedicle was cauterized; the left tube and ovary, which were quite adherent, were removed in a similar manner. A small myoma the size of a hazel-nut, attached by a short pedicle to the posterior surface of the fundus upon the left side, was removed by myomectomy, and the incision in the uterus was closed with catgut. The appendix was found bound down by adhesions to the cecum, so that no meso-appendix was apparent. It was therefore removed and the cauterized pedicle covered with peritoneum. The abdomen was flushed out with salt solution and sponged dry, no oozing occurring. Five hundred cubic centimetres of sterile salt solution having been left in the cavity, the abdomen was closed, catgut being used for the peritoneum and subcuticular sutures and silver wire for the fascia. Convalescence was uninterrupted, the highest temperature being 101.2° F., highest pulse 126. The bowels were opened thoroughly on the day after operation: the dressing was removed on the tenth day, when perfect union was found to have occurred.

Since the patient left the hospital attempts to reach her by letter have been unsuccessful.

*Pathological Examination.*¹—The *right tube* is occluded at the fimbriated extremity and forms a thin-walled, distended sac containing a thin, bloody fluid. The tube measures 24 centimetres in length around its convexity and 5 centimetres in its greatest diameter; the weight of the tube and ovary together is 160 grammes; in color it is dark red, almost black in places, and upon the surface there are a number of separated adhesions. The twists formed at the cornual end of the tube were straightened out at the operation. After being hardened in formalin for twenty-four hours, the tube, when cut open longitudinally, shows some half-dozen compartments, increasing in size from the cornual end outward and separated by incomplete septa. Along the sides of the compartments can be recognized the atrophied folds of the mucosa running in a longitudinal direction. The fluid contained in the cavity has not become hardened, but escapes when the tumor is incised.

Microscopically the whole structure is seen to be the seat of a hemorrhagic infarction, being necrotic and infiltrated with red blood cells.

The folds are few in number and scarcely recognizable. A small amount of the epithelial covering is found, the cells being irregular, flattened, and degenerated, being arranged in a single layer. The connective tissue of the folds is crowded with red blood cells, only a few nuclei of the original structure being seen. The muscularis is also infiltrated with red blood cells, the greater part of the muscle either staining very faintly or not at all; around the periphery, however, the nuclei show up more distinctly. The vessels are distended with blood, and the walls are often degenerated. No peritoneal cells are found.

That a distended hydrosalpinx had existed previously to the twisting of the pedicle and the resulting local peritonitis seems highly probable from the complete and evidently long-existing closure of the fimbriated extremity, the atrophic condition of the folds of the mucosa, and the chronic appearance of the septa dividing the lumen into compartments. A further proof of this is to be found in the fact that the contained fluid did not coagulate when subjected to formalin, as would probably have happened if it had consisted of a large proportion of blood or serum, whereas the fluid in most cases of chronic hydrosalpinx fails to coagulate in this hardening agent. Furthermore, it is extremely improbable that a small occluded tube would become twisted,

¹ From the Pathological Laboratory of the Lakeside Hospital.

such an accident occurring almost always in cases of tumors of considerable size with a small pedicle such as would accompany a distended hydrosalpinx.

The *right ovary*, measuring 3.5 x 2 x 1.5 centimetres in its various diameters, shows a few slight adhesions, but otherwise appears normal. Microscopically a few peri-oöphoritic adhesions are seen.

The *left ovary and tube* show a number of separated adhesions. Microscopically the tube presents a "healed salpingitis." The appendix, 9 centimetres in length, microscopically appears normal. The small myoma, 2 x 1.5 x 1.5 centimetres, presents the usual gross and microscopic appearances.

In the literature a considerable number of cases are found; about thirty have been reported altogether. Forselles¹ describes a case of his own and gives an abstract of fourteen other cases reported by as many writers in the literature. Hartman and Raymond² report two cases, and, in addition to giving some references found in Forselles' article, quote from five other writers who have met with this condition. In a subsequent article Hartman reports three more cases. Legue³ describes three cases, one of which had been previously reported; to this reference had also been made by Hartman and Raymond. Ries⁴ met with a case of spontaneous amputation of both tubes; later the hydrosalpinx which had formed upon the right side became twisted and infarcted, producing the characteristic symptoms; he refers to an article by Präger⁵ in which a number of cases are described. Montgomery also reported a case before the Philadelphia Obstetrical Society.

From the data supplied by the literature the following conclusions may be drawn: This accident, in almost every instance, is found in organs the seat of previous pathological change, the most common condition being a hydrosalpinx. Its occurrence may be explained by the fact that in these cases the tube walls are usually thin, the cornual extremity is narrow, while the fimbriated end is enlarged and distended with fluid, heavy, and is apt to be free from dense adhesions, a considerable range of mobility usually existing. On the other hand, a pyosalpinx is

¹ Forselles: Ueber Axendrehung der Tube. Deutsche Zeitschrift für Chirurgie, 1898.

² Hartman et Raymond: Le torsion de pedicule des salpingo-ovarites. Annales de Gyn. et d'Obstét., 1898.

³ Legue: La torsion de salpingitis. Presse méd., Jan., 1900.

⁴ Ries: American Gyn. and Obstet. Journal, April, 1900.

⁵ Präger: Arch. für Gyn., vol. lviii.

almost always densely adherent, the walls are more thickened and rigid than in a hydrosalpinx, and, the mobility being quite limited, the torsion less frequently occurs. Two or three instances, however, are on record. Torsion of the tube has also occurred in connection with tubal pregnancy, hematosalpinx, uterine fibroid, parovarian cyst, and hydatid cyst. The tube may also be included in the twisted pedicle of an ovarian cyst, as had happened in the case of a patient upon whom I operated in July, 1899. In two instances the tubes were the seat of malignant disease, and in one case (Hartman and Raymond), occurring during pregnancy, the tubes had evidently been previously healthy. This last is the only instance in which evidences of previous lesions were not found.

The tube alone may be involved, or the ovary may also be included in the torsion. The direction of the twist is inconstant, but usually seems to follow the hands of a watch; the number of twists varies from one-half to four and a half complete turns. In size the tumor may be as large as the fetal head at six months, while in form it is variable, being usually somewhat globular and readily mistaken for an ovarian cyst. The wall is usually thin and the tension rather high.

The pathological changes depend upon the degree of constriction. In one of Legue's cases the pedicle was twisted one and a half times and yet there was no apparent compression or strangulation, although the symptoms were well marked. The first change produced by the torsion will be a venous stasis associated with edema and later with interstitial hemorrhage. In appearance a twisted hydrosalpinx in this condition closely resembles that of an incarcerated intestine, being tense, lustreless, and plum-colored or black. In fact, on several occasions it has been mistaken for the strangulated gut. The later effects would be thrombosis of the vessels with the degenerative changes described by Sanger as hemorrhagic necrosis and by Rundl as a hemorrhagic infarct. Actual necrosis is usually, however, prevented by the formation of adhesions in the less severe cases, while operative measures are, as a rule, carried out in the more grave cases owing to the severity of the symptoms.

The symptoms are practically identical with those arising from a twisted ovarian cyst, and it is often impossible to differentiate between the two until the abdomen is opened. At the site of the lesion there is usually sudden sharp pain, which may be so severe as to cause fainting or collapse. Vomiting may occur, and,

in connection with the abdominal pain, may suggest intestinal obstruction or appendicitis, but it does not persist or become fecal. There is rarely obstipation and the temperature is normal or only slightly elevated. A history of one or more previous attacks may often be obtained, as in torsion of an ovarian cyst. Upon examination the tense, fluctuating pelvic tumor can usually be detected; the mobility is often considerable, and in most of the cases a diagnosis of ovarian cyst with torsion of the pedicle has been made.

The prognosis is usually good if proper operative measures can be carried out; the occurrence of a lesion in a pyosalpinx of course adds to the gravity of the case.

The treatment is operative, and, as many of these patients have had previous attacks, if the condition seems to be improving it would seem advisable to wait until the acute attack subsides.

702 ROSE BUILDING.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Stated Meeting, May 29, 1901.

The President, REUBEN PETERSON, M.D., in the Chair.

CARCINOMA OF THE UTERUS.

DR. EMIL RIES.—I have a specimen which is of great importance as having a bearing upon the question of operation for carcinoma of the uterus. This is a specimen of carcinoma of the cervix in which the cancer is limited apparently to the cervix, and for which, according to the usual teachings, vaginal hysterectomy is the proper operation. I had occasion five years ago before this Society to recommend a different method of procedure which I followed out since then, and one case operated on after this method is the one that gives us this specimen. The specimen is important because it proves what I stated five years ago and what has been disputed, namely, that in early cancer of the uterus the glands along the large vessels are involved. I have here the uterus removed after this method with large pieces of the broad ligaments. You see a cancerous ulcer enlarged by the curette and thermocautery. The anterior surface of the uterus is cut open, and in its cavity there is a polypus which is of no especial importance.

I have in my pocket microscopic sections of the glands and of the cervix. These glands were large and could be palpated—which is not always the case—after the abdomen was opened.

Microscopical examination proved the presence of carcinoma in the glands. I want to show the specimen because, according to the usual method of operation, this uterus could have been removed easily, and the patient might have recovered without a recurrence of the disease at the original site, but in course of time would have had an apparent recurrence in the pelvis. In reality this recurrence would have been nothing but a continued growth of the cancerous glands. The specimen proves how necessary it is to remove the pelvic lymphatics in case of cancer of the cervix.

DR. JOSEPH B. DE LEE read a paper entitled

THREE CASES OF CESAREAN SECTION, AND A CONSIDERATION OF THE INDICATION FOR CRANIOTOMY.¹

DR. A. McDERMID.—With many of the sentiments expressed in the paper one can heartily agree, yet an inference might be drawn that might lead us possibly in a retrograde direction. It seems scarcely necessary to make excuses, or rather, I should say, I hope it may become less necessary to make excuses for the performance of the operation of Cesarean section. An operation so grave as that ought to be well justified, but do we hedge about many other equally formidable and dangerous operations with the same restrictions? Operations upon the pelvic organs are undertaken every day in which the mortality is as great or greater than the operation of Cesarean section. An unfortunate case, like the doctor's last case, will occasionally occur, and it is true that public sentiment and professional sentiment, when things go wrong, weigh heavily against the operator, possibly; but his other successes and the successes of other operators in saving the child and the mother outweigh very largely these considerations. It is true that in a measure we should acquiesce in the opinions and desires of the friends; yet we ought to direct carefully those opinions, as we are obliged to do every day in our medical and especially in our surgical practice. Naturally the laity shrink from operations of all kinds, and we must sometimes use well-directed and wise counsel and even assume an unusual amount of responsibility. I think in a general sense that the teaching is correct that craniotomy ought not to be performed upon the living child; that is to say, it is becoming more imperative to teach that, in the light of modern aseptic surgery, than it ever has been before, otherwise the general profession, who take a more lax view of this matter, may allow many fetal lives to be sacrificed.

The essayist stated, I believe, that conception is somewhat rare after Cesarean section. Repeated Cesarean sections have been done upon the same patient, even three or four times, and it can hardly be shown that conception is so rare after Cesarean section. I see no reason why it should be.

I have been very much interested in the discussion, regard-

¹ See original article, p. 454.

ing religious, legal, and other considerations, but I am not prepared to discuss that phase of the question.

As regards the relative mortality, each of us can give statistics which would justify either side of the case. The essayist has assured us that the maternal mortality from craniotomy is practically zero. I have not been looking up the statistics of the last six years, but until quite recently the maternal mortality was about 12 per cent; the later statistics of Leipzig about 8 per cent; and craniotomy, I think, can scarcely be regarded in the light of an absolutely safe operation for the mother. In the doctor's fatal case he assumes that had he done craniotomy he would have saved the mother's life. That, however, can only be assumed. There was a serious complication which might have resulted fatally to the mother, even by craniotomy. I understood also the doctor to say that after twenty-four hours of labor, with certain conditions which he cited, Cesarean section ought to be overruled. I would not like to assume such a hard-and-fast rule as that. I recollect seeing a case about two years ago of neglected mento-posterior face presentation, who had been thirty-seven hours or more in labor, in which I did podalic version with the greatest difficulty, but the fetus was lost. Its heart was beating. I was thoroughly exhausted myself; it was one of the hottest nights in August, I had no assistance of any kind, and I was unable to resuscitate the child. I felt afterward that Cesarean section would have been better. Personally, while not saying that every case must absolutely be denied a craniotomy on the living child, there may be an exceptional circumstance, yet I must give the weight of my opinion in favor of the dictum that it is not justifiable in the main. I take no religious view of the question at all; I speak only from a scientific standpoint.

DR. RUDOLPH W. HOLMES.—I cannot too strongly commend Drs. De Lee and Ries for the position they have taken in regard to craniotomy. If we do any operation as a last resort we will get relatively the same high mortality as we will in craniotomy when it is badly chosen. In times past the mortality of the forceps operation was high, 5, 10, and even 20 per cent, but we cannot argue from these figures that the forceps delivery *per se* is a dangerous method of extraction. We may declare with right that only too often the operation was badly elected. At the present time the forceps operation offers practically no higher mortality than the inevitable death which infrequently follows normal delivery when done by one conversant with the conditions governing the instrument and who is reasonably expert. With the light of present knowledge the forceps may be considered one of the safest instruments in the surgeon's armamentarium, but if improperly used may be potentially as dangerous as any operation done by unskilled hands. In the same way we may consider craniotomy: the mortality of the operation should be *nil*, if the cases are properly chosen, but when done as a last resort the death rate is sure to be high—that is, death

comes from the neglect, not from the operation. After repeated forceps attempts the time for version is nearly constantly by, for the repeated tractions have either seriously compromised the baby's life or killed it, and version only brings a dead or dying baby into the world; true, craniotomy does the same, but the mother has not been subjected to the great danger of intra-uterine manipulations. Too, these women have usually been in labor a long time, and version adds greatly to the danger of uterine rupture. I hold the doctor is culpable who will wait for fetal death before performing craniotomy, for procrastination jeopardizes the mother's life. Under these circumstances I believe it is a greater crime to do the operation on the dead baby than elect to destroy the child's life.

I do not see why the Catholic Church in the United States gives no discretionary power to the doctor and says we may not do craniotomy on the living child under any circumstances. In Austria, next to sections of Italy, which is so largely under the jurisdiction of the Pope, we have the greatest Catholic country in the world; there they fearlessly perform craniotomy. In one of the Austrian clinics I saw six craniotomies in some twenty-five labors, in one of which the woman was in good condition, as was the child: she was a primipara, had been in labor some twenty-four hours; the os was half-dilated, and the only indication was non-enlargement of the head; craniotomy was done, and expulsion was left to Nature. I believe we must still hold perforation under some circumstances as a conservative operation for the mother, and we must not limit its application exclusively as of *dernier ressort*.

In this country, especially, a great many men do not seem to appreciate the indications and conditions which ought to obtain for Cesarean section. They think because a woman's pelvis is under eight centimetres that the case is suitable for section. Let us see how these cases are viewed in Vienna, Dresden, Leipzig, and elsewhere. Schauta, Leopold, and Zweifel will not do the section on relative indications unless the patient comes to them first hand. If a woman enters their institutions with a contracted pelvis of six to eight centimetres in the conjugate, and one examination has been made by a questionable hand, the relative Cesarean operation is ruled out and a possible craniotomy is awaited. This is the reason why these men have had such brilliant results of over a hundred consecutive sections without a death. Statistics made from selected cases are not proper criteria.

I would like to ask Dr. De Lee a question in regard to his first case. The external measurements given were those of a Naegele pelvis, or of an obliquely contracted pelvis. I did not catch the findings of the internal examination. I would like to know what palpation of the sacrum showed, whether there was distinct and positive atrophy of the ala of the right side; and also if there was an ankylosis of the sacro-iliae synchondrosis of that side, which is almost constant in the Naegele pelvis.

DR. FRANK A. STAHL.—Dr. De Lee's paper is certainly a valuable contribution to the literature dealing with the subject of Cesarean section, and the important question of when and where the operation is justified. We are under obligations to him for presenting a critical analysis of the subject and for his epitome of the social and ethical sides of the question. To discuss the many points he brings forward would require more time than the hour permits; therefore I would confine myself to one only. Naturally, in reply to the broader question, there will be at least two great divisions, viz., that of the maternity men and that of the practitioners. The maternist with his ideal environment, assistants and nurses galore, with scholasticisms to establish, cannot avoid permitting these influences to color his judgment. The practitioner is different in his views. He knows of scholasticisms, but he does not let them hinder the free use of his judgment based upon a successful experience. Notwithstanding his ever-changing environment, his limited conveniences, that often his only assistance in emergency is his individuality, he encounters such emergency without a too close regard of scholasticisms. His motive spirit, taught by competitive experience, is to save; he must save. His success in his professional environment, especially where his services are paid for, depends upon his success in saving life and health. The gentlemen who get their wonderful statistics, mentioned by Dr. Holmes, rule out the undesirable cases and operate on the selected ones. As practitioners we are called to our patients often on a moment's notice; we have no choice in the selection of our cases; we are confronted with an urgent problem which demands successful solution. The public is more lenient to the charitable maternist than it is to the practitioner who must be paid. The practitioner dares not rule out; he must save, or he must move out of that community. It is in this spirit of saving that the practitioner regards these questions. He would approach his case in an altogether different syllogistic spirit than Dr. De Lee recommends. As I understand him—and this is the point time permits me to dwell upon—he advances the doctrine: "Given a dead child, craniotomize; no man is justified in doing a version and extraction on a dead child; do a craniotomy, etc.!" Is this obstetrics? No, gentlemen, decidedly not. Most emphatically do I protest against this doctrine. As our young men come here to learn, I sincerely hope that this dogma will not find place among their teaching, except possibly to its utter annihilation. It is retrogressive and pernicious. In crucial cases, who knows positively if the child be dead? The obstetrician? No; experience has taught otherwise. Repeatedly the practitioner enters in with version and extraction and saves a living child without danger to child or mother, where diagnosis was: long-delayed labor; cephalic and shoulder presentation; no heart tones; dead baby! Would scholasticisms here suggest craniotomy, decapitation, or other embryotomy? How often then will a living viable child be sacrificed! Such a doctrine should not become scholastic.

Even so, the practitioner will reject it, if not right away, then soon through bitter experience. Dr. De Lee and I have already met in a similar discussion, on which occasion I expressed myself as favoring the Cesarean section preferably to craniotomy on the living child. "Given a pelvis . . . and the living head cannot by any means pass through . . . then let us perform Cesarean section. I hope the consensus of opinion throughout the world will be that we should never perform craniotomy on the normal living child, unless compelled to do so by the family."

DR. CHARLES E. PADDOCK.—I desire to congratulate Dr. De Lee on his admirable paper and the excellent manner in which he has covered the ground. I can take no exceptions to it. I agree with him in regard to craniotomy upon the dead child. When a practitioner is capable of making a diagnosis of a dead child *in utero*, I believe craniotomy should be performed in preference to turning or applying forceps, or resorting to any other method of extraction.

With reference to the technique of controlling hemorrhage in these cases, I do not believe in the rubber tourniquet, or the application of any ligature about the lower uterine segment. I have myself performed the operation two or three different times and have assisted in several other cases, and there is no trouble in controlling hemorrhage if we will grasp the uterus with the hands low down toward the cervix. If we use a ligature and draw it tight enough to control hemorrhage, a certain amount of damage will be done to the tissues, and I simply call attention to it to condemn it.

DR. DANIEL H. WILLIAMS.—I have been very much interested in Dr. De Lee's paper. He has given us a classical contribution. There are some statements made in the paper which, on second thought, are not sufficiently clear, and one of them relates to one hundred per cent of recoveries after embryotomy. It is a fact well known to many of us that ninety-nine per cent of all deliveries in the United States are by general practitioners. The general practitioner has these cases to deal with. It is a fact known to most of you that there are deaths after embryotomies, deaths after forceps operations, that we hear nothing about. It is undoubtedly true that those gentlemen who practise nothing but obstetrics, who are qualified to do all the obstetric operations known to the science, have no, or very few, deaths in their practice; at the same time the ordinary practitioner meets with cases every month where death follows craniotomy or high forceps operation, presumably from infection following traumatism.

Another point in the paper, which one or two gentlemen have taken issue with, is with reference to operating upon the living child. I have done three Cesarean sections under positive indications, and I do not think an embryotomy would have been indicated in any event. It does not seem to me, in the light of my limited experience, that I would resort to embryotomy or

craniotomy upon the living child. The success of Cesarean section by men who are versed in surgical technique and asepsis is so sure and the statistics so good that I do not think, if we were to compare the results of the two operations, embryotomy as it is practised every day, and Cesarean section as practised by the skilled operator, there would be much difference in the mortality. I wish it were possible for us to have some experience that would lead us to formulate the same conclusions about embryotomy that have been expressed by Dr. De Lee.

DR. DAVID O'SHEA.—During my seventeen years' practice I have attended about eighteen hundred cases of labor, and of that number I have had two Cesarean sections, mother and child living. The last operation was performed at the Presbyterian Hospital by Dr. Etheridge, and the child is still living.

I would like to ask Dr. De Lee how long he leaves the forceps on before resorting to craniotomy.

In my last case, which occurred twenty-seven months ago, in a woman, 43 years of age, who had been married four years, I allowed the forceps to remain on four and a half hours, the patient being under the influence of chloroform and nitrite of amyl, five per cent. The mother and child are still living and well. In all my obstetrical work I have never performed craniotomy. I have not felt justified in so doing, and I sometimes think many of us are too hasty to resort to the more radical measures when, with a little more patience and care, we could save the mother and the offspring. If I followed the rules laid down by the author of this paper to-night, showing as it did deep research, I probably would have performed craniotomy on that case. When I look back and compare Cæsar with his mother, I am inclined to think that if Dr. De Lee lived at that time he would not have had any history of Cæsar's existence. I feel as though we ought to be a little more patient. We are too hasty in the work we have to do; we are in too great a hurry to get through with the work we have in hand.

DR. DE LEE (closing the discussion).—A great many of the points that have been brought out in the discussion are practically answered in the paper. There are some points, however, that I would like to answer. Dr. O'Shea asked how long I would leave the forceps on before doing craniotomy. I will quote the words of Carl Braun, who lived in Vienna about the middle of the last century, and his experience was greater, when he died, than that of any obstetrician who has lived before him or since. He said the operation of high forceps (axis-traction forceps) was one of tentativeness. It was a trial instrument, and that if after eight tractions, properly delivered, using as much force as was justifiable, no apparent progress was to be noted at the end of those eight tractions, the axis-traction forceps should be removed and craniotomy resorted to. This dictum was taught by the late Prof. Jaggard, whom many of you remember. I would like to ask Dr. O'Shea, if he has kept statistics of his eighteen hundred

labors, how many children upon whom he performed laborious forceps operations were delivered alive, how many remained alive, and how many had fractures of the skull, etc. I have delivered children by means of forceps, alive, after strenuous efforts, and I have seen them die in a few minutes, after a gasp or two, or after the first few days from hemorrhage of the brain.. I was convinced, in those cases, that had I done craniotomy instead of a difficult forceps operation, the result, so far as the mother is concerned, would have been much better; the lacerations which I inflicted with the instrument would not have been produced.

You will be interested if I tell you about the case of Dr. Van Hoosen. This little woman came to me two and a half years ago. She is a hunchback with a pronounced kyphoscoliosis. I do not remember the exact measurements of the pelvis, but it is not too small to allow delivery of a full-term child if the child could get into it. Her spinal column comes down over the pelvis in this manner [illustrating]. From here down [indicating] there is plenty of room for the delivery of the child, but the head cannot enter the pelvis because the spinal column prolapses and the pelvis is roofed over. She has a "pelvis obtecta." This woman came to me several times and I examined her very carefully. A diagnosis was made, and the induction of premature labor was advised. The patient absolutely refused Cesarean section. She had already been laparatomized by Dr. Fenger for appendicitis, and said that she had suffered enough at the hands of surgeons, and on that account refused Cesarean section. But I insisted on the induction of premature labor. We started the labor one Friday afternoon, pregnancy about seven and a half months, and you may judge of the size of the child at that time when I tell you that it weighed four and a half pounds. The pains came on slowly, and after several attempts to increase the strength of the pains, I think Monday night or Tuesday, it being three or four days, the patient's condition became such that we had to terminate the case. The head of the child presented and was fixed at the aperture. We attempted high forceps operation, but it was impossible to deliver the child with high forceps. After the eight trial tractions recommended by Carl Braun, craniotomy was done. It was a premature infant. It was understood before operation that, in the event of it being impossible to deliver the child by high forceps, craniotomy was to be selected. This woman became pregnant again, and Dr. Van Hoosen delivered her by Cesarean section. There is one point about which I must personally express grave doubt, namely, that this woman was in labor a week. We have heard statements from patients about being in labor a long time. There is such a thing as false labor, and I doubt very much if this woman was in actual labor for a week, and I doubt if she was in actual labor for four days. She may have had pains for four days, but actual labor may have lasted only a few hours. With our in-

duction of premature labor the patient had pain, but no uterine contractions, for many hours. I dilated the cervix myself.

Dr. Paddock has replied to Dr. Stahl. Dr. Stahl disagrees with me in regard to the indications for craniotomy on the dead child. He took the same position years ago when I read a paper before the Illinois State Medical Society. He did not understand what I said. I stated that craniotomy should supersede all operations undertaken to deliver a dead child. That is plain English. If the child is dead, and the obstetrician knows it, craniotomy should be resorted to. Certainly, we would not do a difficult version, a difficult extraction, or a difficult forceps operation in a case where the child is dead, because there is nothing to be gained. We should remove the child with the least possible injury to the mother.

Dr. Holmes asked about the shape of the sacrum. I neglected to state that the patient had a rigid perineum, which prevented careful palpation of the bone. The promontory of the sacrum was practically where it belonged and the sides of the pelvis were close together.

Dr. Ries has answered a great many of the points that have been brought out in the subsequent discussion. He said that during a Cesarean section it is justifiable to sterilize a woman, at her request, and I perfectly concur with him in that.

In reference to the remarks of Dr. McDermid: He spoke of having had a case where a woman was in labor thirty-seven hours, in which he did podalic version and extracted a dead baby. To my mind this case has very little bearing on the subject under discussion. That is a common occurrence. Certainly it would not have been worse if he had done craniotomy. If he had done Cesarean section I doubt whether he would have saved the mother.

I said that the mortality of craniotomy is zero in comparison with those cases where Cesarean section comes up for consideration, from the relative indication. Craniotomy is a simple procedure where the woman is in good condition. We do not consider Cesarean section in the proper light. We should consider it as a serious abdominal operation. We cannot compare obstetrical laparatomies with gynecological laparatomies. There is no doubt in my mind that a woman is in a different condition during labor to undergo laparotomy than she is when not pregnant. They do not stand laparatomies as well as the women who are not pregnant.

I wish to say, in closing, that the object of this paper was not to prove that Cesarean section is not justifiable. My three cases show that I think it is justifiable, and so we all have to do this operation to save the infant. The principal object of the paper was to prove that craniotomy is not yet to be discarded, but that we must reserve it as an ultimate resort in cases where the mother's life is endangered by more serious operations.

TRANSACTIONS OF THE CINCINNATI OBSTETRICAL SOCIETY.

Stated Meeting, May 17, 1901.

The President, J. M. WITHROW, M.D., in the Chair.

DR. WILLIAM TAYLOR read a paper on

EXCESSIVE VOMITING IN PREGNANCY.¹

DR. ROBERT W. STEWART.—To any one who has practised obstetrics the thought must often have come: How can the pregnancy have much to do with either the etiology or pathology of the vomiting? We read that deviations and inflammations of the uterus, cicatrices about the cervix, twin pregnancy, hydramnios, etc., to say nothing of all diseases which have vomiting as a symptom, have in turn been invoked as the essential feature in the vomiting of pregnancy, and that when these conditions are removed the vomiting ceases although the pregnancy persists. In this connection I want to call your attention to three things of recent publication, as showing how we still talk about a vomiting due supposedly to pregnancy, yet for which totally different causes were found. Dirmoser reports a number of cases in *THE AMERICAN JOURNAL OF OBSTETRICS* for 1900, p. 110, in every one of which he was able to effect a cure by cleaning out the bowels, and he makes this statement, that in all these cases skatol, indol, peptone, and albumin could be found. Another writer in a recent number of the same journal says that in a number of cases he could map out a flexure of the pylorus and duodenum, and that he cured every case by persistent palpation over the abdomen. As an example of the third class Dr. Evans² summarizes his article: "1. There exists more or less of a rhythm in the paroxysms of nausea and vomiting of pregnancy. 2. There must also exist a rhythmical exciting cause for these paroxysms. 3. There is a rhythm in the contractions of the uterus which occur throughout pregnancy. 4. The essential exciting cause of the paroxysms of nausea and vomiting of pregnancy is frequently the physiological contraction of the muscular fibres of the uterus." Is it not justifiable to ask: Are any of these things pathognomonic either of pregnancy or of vomiting?

At the risk of making the subject still darker I wish to report a case which occurred in my own practice. About eight years ago I saw for the first time a patient with pelvic abscess which fairly "pointed" in the right inguinal region; she had

¹ See original article, p. 499.

² *THE AMERICAN JOURNAL OF OBSTETRICS*, vol. xli., p. 390.

been delivered of a child a few weeks before and was inclined to blame the obstetrician for the occurrence of the abscess. The abscess was drained and the woman recovered. A few months later I was again called because "of another swelling" which patient feared was another abscess. Pregnancy of third month was diagnosed and the patient so informed. There had been some nausea, but now vomiting set in, and in spite of flushings of the bowels, oxalate of cerium, careful dieting, and all other precautions then known, she retained nothing in her stomach, not even water. She wasted away until she was unable to leave her bed. The urine contained no albumin. A month's work led to the determination to bring on abortion. The patient was willing, but was a little startled at the idea of going to a hospital. She consented, however, and went toward evening, before I could send word as to what line of treatment should be carried out. The result of which was that she got the ordinary hospital diet, and, more remarkable still to relate, ate and retained every bit of it.

In such cases—and there are many of them in the literature—I can only think with Kaltenbach that hysteria is the essential element in the whole case. There was no change in my patient between noon, the time of my visit, and six o'clock, than the profound mental impression which a stay in the hospital and the possible getting rid of the child might have produced. There had been, as the result of the discovery that she was again pregnant, a loss of that nervous equilibrium by virtue of which function is normally performed, hence complete perversion of function as concerns the digestive apparatus; there had come a restoration of that equilibrium because of the promise of deliverance. If this does not explain hysteria, what does?

Truth compels one to state that even hysteria does not account for all things—for example, the blood changes which occur during pregnancy and which seem to have some causal connection with persistent or pernicious vomiting. This is a subject which has not been sufficiently worked out as yet.

A few words might be said about physiological vomiting. The morning sickness of pregnancy has been called physiological, and yet it is not always present—indeed, when the bowels are carefully attended to, is rarely present; and yet the pregnancy persists. So-called physiological vomiting probably never occurs in a physiological woman and should be thrown out of the nomenclature.

It is justifiable, on the other hand, to speak of ordinary persistent and pernicious vomiting of pregnancy, signifying thereby simply variations in degree, perhaps, and not committing one to any particular theory; but I do want to say right here that in my judgment pregnancy uncomplicated never yet caused a woman's death by producing vomiting; that even in those cases in which no gross lesion could be found post mortem a definite

cause other than pregnancy existed, but eluded the powers or the industry of the pathologist.

DR. STANTON.—On the occurrence of vomiting the first thought in diagnosis is that there is something wrong with the stomach or in its contents, and in most cases this symptom is the result of some digestive disturbance; but it is well known that in many cases it is not symptomatic of gastric disease, but a reflex phenomenon produced by conditions of disease in distant organs. We not only see persistent vomiting caused by reflex irritation from the uterus, but from other organs or tissues. Chiara attributes the occasional occurrence of obstinate vomiting after ovariectomies to reflex irritation due to constriction of the nerves in the stump, the symptom continuing until the stump atrophies. We also see cases of persistent vomiting resulting from some poisons in the blood, as in uremia, eclampsia, Bright's disease, and in chronic infections where the existence of a toxin offers the most rational explanation of the trouble, the toxin producing the vomiting by some irritation of the vomiting-centre in the medulla oblongata, just as it is produced by some emetics—apomorphia, for instance. May it not be that the hyperemesis of pregnancy is due in some cases to a similar condition? It seems to me that, at least in some of these cases, the symptom is produced by toxemia. There is something more here than mere starvation. Lindemann, of Moscow, reports a series of investigations upon the vomiting of pregnancy that seem to confirm the theory of chronic infection. He examined microscopically the tissues of a mother and fetus who died from obstinate vomiting, and found neuritis affecting several nerves, the involvement of the phrenic nerve being especially marked. The spleen was enlarged, the kidneys free from evidence of inflammation but showing some fatty degeneration of the epithelium. Much the same degenerative changes occurred in the fetus, showing the participation of the fetus in the disorders of the mother. These conditions he believed to be due, not to simple inanition, but to a chronic infection, and his observations on animals dying of starvation enabled him to exclude simple inanition as a cause of the lesions found.

Guenther and many others regard the affection as sometimes a neurosis—an opinion apparently confirmed by the occasional good results of treatment by galvanism. It is no doubt true that the vomiting of pregnancy may be due to one of a number of causes or conditions not always the same. A metritis, a displaced uterus, a lacerated cervix, or a distended bladder or rectum may, by reflex irritation, excite vomiting, and the dependence of the symptom upon the disease elsewhere existing is shown by the result of treatment. The occasional dependence of uncontrollable vomiting upon constipation is shown by a case reported by Wiesel, a primipara whose condition became desperate. Constipation had been a troublesome symptom. The sedative and nutrient injections which were used caused copious

stools and so much improvement that the sedatives were soon withdrawn, the rectal feeding being continued until digestion was re-established.

The association of hyperemesis with uterine displacement is frequently referred to. Dr. Grailey Hewitt reported fifty cases in which pronounced displacement existed, causing severe vomiting in pregnancy, most of which were greatly relieved and some cured by replacement. In one case under my care a greatly retroverted uterus was the cause of the vomiting, which ceased upon the reduction of the dislocation.

Relief, more or less permanent, has not infrequently followed dilatation of the cervical canal, and this in some cases where neither displacement, erosion, nor other indications of local disease were perceptible: and so prompt and perfect has been the cure in some cases that there seems to be no doubt as to the connection between the morbid condition of the cervix and the gastric disturbance. It seems to me, then, that it is not at all improbable that there are many conditions, differing in character and location, that may sustain a causal relationship to this very annoying disturbance.

As the etiological factor is not always the same nor always discoverable, it follows that the management of these cases must be to a great extent experimental. Deductions in regard to treatment cannot be drawn from a small number of recoveries. What will cure in one case may fail in the next, and failures with any single remedial agent are more numerous than the successes. In some cases much may be done by local treatment, in some by general treatment, and in others a combination of the two may be required. If the vomiting is dependent upon a reflex, the cause should be removed, if possible. The local treatment consists in the relief of displacements, the cure of erosions, the relief of constipation or whatever condition may be present as a cause. In hysterical or neurotic cases galvanism has sometimes been beneficial, as in the cases of Guenther before referred to; but unfortunately the same treatment has often been disappointing. In the same class of cases feeding by means of an esophageal tube has been attended with good results. Dilatation of the cervical canal, which has given such satisfactory results in many cases, has in the experience of other physicians done but little good. Henning says he has rarely found it successful. An operation that has in some cases done much good is tamponing the cervix. Kehler, of Heidelberg, reports a case of a young woman of hysterical temperament who, not long after marriage, had an abortion at about four months. During this period she had been greatly troubled with vomiting which was not relieved by narcotics. Soon after she again became pregnant and at once began to suffer much from nausea. After various remedies had been tried without affording relief an effort was made to end the nausea by dilating the cervix with the finger. But brief improvement followed. The patient's condition became so se-

rious that it was determined to empty the uterus, and, with a view to bringing on labor pains, he tamponed the os and cervix with gauze saturated with glycerin. The nausea stopped immediately, and for a period of several days she was entirely relieved; but it returned later and the tampon was reintroduced with a similar result. By this method the patient was kept along until the thirty-third week of pregnancy, when labor was induced and she was delivered of a living child. The use of tampons with ichthyol has also been recommended, but whether the benefit resulting was due to the tampon or to the ichthyol is uncertain.

Counter-irritation over the stomach or the application of ice or spray of ether to the same region has sometimes given relief. The same may be said of vesication over the fourth and fifth dorsal vertebrae.

In regard to general treatment, that by medicines internally administered, I think it is largely empirical. Very many things have been tried with varying degrees of success. Time will not permit, nor is it necessary, for me to refer to all of them. They have for their main object the relief of gastric irritability, so that food may be retained and the patient nourished until Nature or the doctor removes the cause of the vomiting. The old remedies, bismuth, oxide of zinc, oxalate of cerium, and ingluvin, are as household words. With the last named I have had no success, although some of my medical friends speak highly of its use. The remedy that has in my experience more frequently given relief than any other is the dilute hydrocyanic acid, two or three drops given before feeding. Atropin in doses of $\frac{1}{120}$ to $\frac{1}{50}$ grain has been recommended. Nitroglycerin has many advocates. Humphries speaks of it as almost a specific. Cocaine has been much used of late, both by the stomach to allay gastric irritability and to the uterus in sensitive conditions of that organ. The phenate of cocaine is preferred by some for internal administration to the hydrochlorate, ten drops of a four per cent solution being given before meals.

Morphia, by the stomach or hypodermatically, has its advocates, but I believe it to be very objectionable, and only allowable in extreme cases when other medicaments have failed.

A remedy that has been highly recommended is bromide of strontium in doses of fifteen grains four times a day. It acts as the other bromides, diminishing the excitability of the nerve terminations in the stomach, but it does not present the disadvantage of the potash and soda salts, *i.e.*, diminishing the nervous and muscular energy after long use.

Chloroform water, the compound tincture of iodine, chloretone, and menthol are grateful and warming to the stomach and may relieve emesis where other measures have failed; and so on through a long list of remedies that oftener disappoint than please.

Rectal alimentation should always be tried before resorting

to extreme measures. If the food is predigested, not too much is introduced at one time, and the bowel is frequently washed out with tepid or cool water, the strength can occasionally be maintained until the vomiting subsides.

If, after reasonable experimentation with the local and general treatment referred to, we are unable to obtain such relief that the patient's strength can be kept up, recourse should be had to the induction of abortion. This is sometimes the only efficient treatment for severe cases, but it is apt to be too long deferred. The patient should never be permitted to reach an extreme degree of emaciation before the uterus is emptied.

DR. C. L. BONIFIELD.—We will all agree that the increased irritability of the nervous system in pregnancy is one of the causes of the vomiting, but that this increased irritability is always an hysteria is at least open to question. I cannot agree with him, either, that the differentiation between the milder cases and the pernicious ones is easily made. Many times the milder cases are neglected until the stomach is badly out of order and the patient's nutrition is much affected. Faulty nutrition is one of the most frequent causes of neurotic symptoms. In this way the milder form of the trouble may be the direct cause of the severer form. Every one who has to treat neurasthenic cases recognizes the importance of nutrition as a cause of the condition. I believe Dr. Forchheimer was the first to point out the fact that in neurasthenic women an imperfect intestinal digestion is often at the base of the trouble and is best treated by intestinal antiseptics. Dr. Taylor spoke of colonic flushings; that is one of the best ways of relieving the patient of the products of faulty digestion.

I saw a suggestion in one of the journals to-day that appears rational. It was, as the vomiting occurs particularly in the morning, when the stomach has been long empty, that it is wise not to allow the stomach to remain empty for any considerable length of time. To avoid this the patient is instructed to take some milk or other light nourishment several times during the night. I have frequently found it advantageous to instruct such patients to take a cup of black coffee in the morning before getting out of bed.

One of the most useful drugs I have found in the treatment of this condition is the hydrate of chloral, given in full doses by the rectum.

The disease has no pathology. The cases quoted in which changes in the nervous system were found were coincidences. It simply happened that a woman with a brain tumor, for instance, became pregnant.

DR. RUFUS B. HALL.—I do not practise obstetrics and have not for a number of years, but experience ought to count for something in certain lines as being for or against certain methods of treatment in these cases. There was a time for sixteen or seventeen years when I was engaged in family practice, and for a

number of years I enjoyed quite a large obstetric practice as well as a large consultation practice. I have seen a number of cases of pernicious vomiting, and when called to see the cases as narrated by Dr. Stanton, that of a woman who has vomited for weeks or months and it seems that she is at death's door, what are we to do in these cases? Hold up our hands and let them die, or try to make an effort to save them? One gentleman to-night said he was afraid to perform an abortion, and mentioned a case that recovered from an abortion and afterward died of another cause. We all recognize an abortion is a dangerous procedure. But I arise especially to put my testimony against that of another gentleman who spoke this evening, because his experience was so different from my own. In the first case I was ever in in which an abortion was produced the woman had vomited for months. It was the wife of a poor renter in the country, a long distance from Chillicothe. Finally, when it came to the test whether we were to produce an abortion, I asked the distinguished Dr. Waddell, now deceased. He was in his prime at that time even, and he, with the rest of the physicians, three or four of us, agreed that she would die if we did, and would probably die if we did not. I said: "I am willing to do my duty—I am willing to produce an abortion on the woman if you will consent to it." We simply introduced a uterine sound, turned it round, and ruptured the membranes. She never vomited again, she aborted and expelled the membranes in a few hours. She was, I suppose, four and one-half or five months pregnant. Another patient was the wife of a well-known railroad official of Chillicothe, the mother of several children. I had been the family doctor for a number of years. I had her under my care for three or four months, and we had consultation after consultation, until she was so far gone we thought she would die whether we did or did not produce an abortion. We produced an abortion on her and she never vomited but once or twice afterward. She recovered and several years afterward raised a child and is living yet. In another case in a neighboring town to Chillicothe, with the consent of the doctors there, an abortion was produced and the patient recovered. In all three of these cases the vomiting stopped soon after the abortion. My experience, I believe, coincides with the experience of the other speakers, that the vomiting stops at once, which is opposed to the opinion expressed by one of the speakers. I do not do any obstetric work, but I have a very dear friend in one of our neighboring cities whose wife had to have an abortion produced a few years ago, and she nearly died because it was put off too late. But a year and a half ago he asked me to see his wife. She was pregnant and had vomited for three or four months, and it was arranged that I should produce an abortion that day. I disagreed and refused to produce an abortion because everything had not been tried that should be tried. We turned her in the Sims position and dilated the cervix, and

she did not vomit any more, and was later delivered of a living child. Everything else had been tried, apparently without any benefit.

DR. CHAUNCEY D. PALMER.—In a general way we can say that the vomiting of pregnancy is a disease that should be treated by dietetic measures, hygienic measures, medical measures, and by surgical measures. In the irritable stomach of pregnancy nothing agrees so often and so well as buttermilk. It can be given in tumblerful doses every three or four hours. Koumiss does well with some. As to medicines, bromide of sodium is useful, sometimes very useful. Undoubtedly its beneficial effect is sometimes due to its efficiency in reducing reflex action. It is best given, I think, well diluted in water before meals. Another remedy that I have found to do a great deal of good is tincture of *nux vomica*, not in large doses, but one drop in a teaspoonful of water hourly. Another remedy that I have found beneficial is the faradic current. Blistering or counter-irritation along the spine has been referred to. A faradic current applied along the dorsal spinal region will do a great deal of good. I have often wondered whether the effect of that, and many other things we do in these diseases, is not psychical. This disease is a neurotic disease generally, and it is most manifest in those who are subject to neurotic diseases. Women in highly cultivated life, more or less anemic and nervous, are most likely to have vomiting most pronounced and pernicious. Anything that will make a powerful influence on the mind and divert its attention acts very beneficially. Now as to the advantage of local treatment. The worst cases of vomiting of pregnancy I have seen have had no local disease whatever; there was no reflexion or retroversion or erosion. I do not take much stock in local treatment for the vomiting of pregnancy. Dilatation will often do good, and is undoubtedly a wise procedure when we believe it is necessary to produce an abortion. We can use a No. 1 dilator, and then rest and see whether that is not sufficient. Unquestionably it is beneficial in some cases; if it does not do good, it may be repeated in a few days and the uterus emptied.

TRANSACTIONS OF THE OBSTETRICAL SOCIETY OF LONDON.

Meeting of July 3, 1901.

The President, PETER HORROCKS, M.D., in the Chair.

MR. J. PRESTON MAXWELL (Amoy, China) read a paper on spontaneous rupture of the uterus in placenta previa. He had met with three cases of this accident. In the first the woman died undelivered within a few minutes of the rupture; in the

second the uterus was found ruptured posteriorly after delivery, and she had dangerous hemorrhage, but recovered after anti-septic gauze-packing of the rent.

The details of the third case are as follows:

S., a primipara, aged 23, had been in poor health during her pregnancy. Fortunately she was more enlightened than the majority of Chinese women, and called him in when labor began. She had weak, poor pains, and the child was evidently at full term, the cervix dilated very poorly, especially posteriorly. There was a little more bleeding than usual, and this, combined with the irregular dilatation of the os, which would admit two fingers, caused a suspicion of placenta previa, and the edge of the placenta was felt behind. As she lived close by, it was decided to get her into a better condition by procuring some sleep, and to that end she was given a dose of chloral and bromide. She went to sleep, and when next visited, about twelve hours after, the cervix had closed up and admitted one finger with difficulty. There was no further hemorrhage, and at the end of fourteen days labor came on, and the os dilated, but still it did not dilate well behind. When nearly dilated he left the room for some two or three minutes, but returning found she was beginning to bleed badly, and he at once ruptured the membranes, and, the child's head coming down, placed his hand on the uterus and kept it there, but without in any way stimulating it. At the end of ten minutes the child was born without assistance. The moment it was out of the vagina, blood simply pumped out and death appeared imminent. Turning her on to her back, he quickly expressed the placenta, and, with his hand on the abdomen, pressed the uterus forcibly downward and backward, and administered ergot by mouth and hypodermatic injection. The bleeding which had been checked by the pressure of the uterus downward came from a rent of the posterior wall of the uterus and the cervix, and the examining fingers could be passed directly into Douglas' pouch. He packed the rent with gauze wrung out of biniodide of mercury lotion, and kept up pressure on the uterus for two hours. The gauze was removed in twenty-four hours. No douche was given and no septic symptom arose, and her recovery was uneventful.

The child weighed five pounds and was puny. At the end of three weeks it developed pneumonia, owing to a chill, and died after two days' illness. The placenta was a placenta previa marginata, and the rupture had occurred through the entire cervix and lower portion of the placental site.

It is well known that in cases of placenta previa the wall of the uterus is not strong, and in some cases fatty degeneration of the uterine muscle has been discovered. What exactly sets up the rupture in these cases it is difficult to tell. A severe pain accompanied by an expulsive effort is sufficient to start the rent, and, once started, it is apt to enlarge mechanically.

As to the treatment, laparotomy and suture would have been

extremely difficult and almost certainly fatal. And it was impossible to suture the rent per vaginam, especially in a dirty Chinese home.

DR. F. H. CHAMPNEYS said that the case was remarkable in several ways. The small size of the child, the absence of malpresentation, the absence of interference, and the absence of anything in the history to account for the accident combined to make it worthy of record. As to the treatment, he thought it was perfectly correct; the plugging of the rent with gauze was the most successful treatment in cases in which the fetus and placenta had not escaped into the peritoneal cavity. He was not, however, surprised that the case was well treated, as Mr. Maxwell (who had only lately been his hospital assistant) was well known to him.

DR. G. E. HERMAN concurred with what Dr. Champneys had said as to the merit of the paper. Dr. Maxwell had quoted some current statements, without, however, indorsing them as his own, and therefore he could hardly be held responsible for them. He said that in the placenta previa the uterus had been observed to besoft. It was true that some writers had said so; others had said that it was hard. He (Dr. Herman) did not think there was any marked or constant difference in consistence between the uterus with placenta previa and any other pregnant uterus. He also said that spontaneous rupture of the uterus was due to fatty degeneration; and in that he followed the statements of eminent writers on midwifery. But he (Dr. Herman) knew of no good evidence to show that fatty degeneration of the uterus was present in cases of rupture of the uterus. Fatty degeneration of the uterus had been said to take place in the puerperium, but the more recent researches of Helme showed that it was no part of the process.

DR. DRUMMOND ROBINSON, in reference to points raised by Dr. Herman regarding fatty changes in the involuting uterus, stated that he had had the opportunity of examining microscopically two specimens of involuting human uterus. Careful staining with osmic acid failed in both instances to demonstrate the presence of fat.

DR. HERBERT SPENCER said that the case was one of unusual interest and had been judiciously treated and well recorded. He was pleased to find that in two cases mentioned by the author in which gauze packing had been employed recovery ensued. Dr. Spencer had called attention to this method of treatment in a paper read before the Society last year, giving notes of four cases successfully treated in this way. His previous experience had been that every case of rupture of the uterus (about eight in all) had died. At the present time it was usual to recommend abdominal section for complete rupture of the uterus; but that operation, especially if followed by hysterectomy, was generally too severe a shock for a patient suffering from a rupture of the uterus, and if those with experience of this accident would pub-

lish all their cases, as he had done, he had no doubt that the results of hysterectomy would compare very unfavorably with those given by gauze packing.

DR. AMAND ROUTH had seen one case of spontaneous rupture of the uterus with placenta previa. The patient was eight months pregnant and had had several attacks of hemorrhage. Under deep anesthesia the cervix was found rigid, and it was not easy to insert the finger. An anterior marginal placentation was found. The tongue of placenta was separated from the lower uterine segment, podalic version performed, and the leg brought down to the half breech, which was left *in situ* for Nature to complete the delivery. In about twenty-four hours, the patient's doctor being then in charge, labor pains came on and the child and afterbirth were spontaneously expelled. In two days septicemia was evident, and the doctor then found that the uterus had ruptured anteriorly. In spite of all treatment the patient died. He had no doubt that Dr. Maxwell's treatment by packing the rent with antiseptic gauze was the correct one to adopt, arresting hemorrhage and securing drainage.

THE PRESIDENT thought the treatment was not only excellent in "a dirty Chinese home," but was the very best treatment in a London or any other hospital with every appliance available. The treatment of rupture of the uterus by packing with gauze was most successful in saving life. He certainly considered that much of this success was due to the fact that the parts had not been rendered septic by the accoucheur's hands. He related details of a most extensive rupture of the uterus which was treated by packing, this being renewed under chloroform every day for twelve days in succession and then less frequently. The patient then became very ill, and at last a large slough was extracted from the right broad ligament, and ultimately the patient recovered.

The following specimens were exhibited: DR. CUTHBERT LOCKYER: Menstrual membrane from a case of exfoliative endometritis. DR. RICHARD ALCOCK: Microscopical sections of a cyst of a corpus luteum. DR. J. S. FAIRBAIRN: 1. Primary carcinoma of the ovary. 2. Incomplete tubal abortion. MR. A. C. BUTLER-SMYTHE: 1. A cancerous uterus removed eighteen years after double ovariectomy. 2. Diverging traction forceps for vaginal hysterectomy. DR. WILLIAM DUNCAN: Two fibromyomatous uteri (one cystic) removed by abdominal hysterectomy.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Treatment of Puerperal Eclampsia by Saline Infusions.—Robert Jardine¹⁴ gives subcutaneous infusions of from one to three pints under the breast or in the abdomen. If necessary the

infusions are repeated several times. Jardine believes that there is a diuretic effect obtained by the use of the infusion, especially when, in addition to the normal salt solution, acetate of soda or bicarbonate of potash is used. The saline solution, besides flushing the system, dilutes the poison and stimulates the patient. He also believes it has an effect in controlling the fits. The death rate of cases of puerperal eclampsia treated by saline infusion at the Glasgow Maternity Hospital was as low as 24 per cent, as against 47 per cent treated by the old methods.

In the treatment of this disease O. A. Gordon¹² prefers the hypodermatic use of ten minims of the fluid extract of *veratrum viride*, with five-minim doses at intervals of half an hour until the pulse comes down to 60 or below. He keeps the patient under the influence of the drug until all danger is past.

Dystocia from Coiling of the Umbilical Cord.—Edward P. Davis⁹ reports two cases of extensive coiling of the cord. In one case the cord was found twisted three times around the neck, passing over the shoulder, across the body, underneath the axilla of the opposite side. A distinct hissing *souffle* of the cord was heard. In the second case the cord passed about the neck, over the shoulder, and beneath the opposite arm. No murmur was heard in this case. This condition is diagnosed by the murmur or *souffle* in the cord and by the altered movements of the child.

Albuminuric Retinitis and Uremic Amaurosis in Pregnancy.—E. W. Clap⁵ states that both the above conditions are rare in pregnancy. Albuminuric retinitis is a disease accompanied by immediate visible changes in the eyes. It may occur at any time, but especially during the first two months. It is apt to recur in successive pregnancies, though not necessarily. Blindness is almost never caused by the first attack, but each does some damage. Uremic amaurosis is a disorder of the visual apparatus not accompanied by immediate visible changes, although it may finally lead to atrophy. It usually occurs late in pregnancy. It apparently never destroys sight by its first attack. In albuminuric retinitis occurring early, abortion should be considered if the retinitis is of a severe type. The treatment of both the above conditions is the treatment of the albuminuria and the non-use of the eyes.

Diachylon as an Abortifacient.—W. Wrangham⁷ draws our attention to five cases of plumbism due to the use of lead as an abortifacient. In all these cases the effect of the poison was manifested chiefly in the nervous system. Four of the cases presented optic neuritis and ocular paralysis. In these cases the sixth nerve seemed to be very vulnerable.

Galactorrhœa and Amenorrhœa.—The relation between the functions of the breasts and genitals is illustrated by two cases recorded by Schwab.¹⁸ After the first pregnancy of the first case lactation continued eight months until stopped by treatment with hot applications, pressure, and antipyrin, although the

woman did not nurse her child. Amenorrhea, which had been complete since pregnancy began, ceased when lactation was checked. In her second pregnancy the same condition was found five and a half months after delivery. The other woman had always nursed except after her last three labors. When seen eight months after her sixteenth she was secreting a large quantity of milk and had not menstruated since it began. Both women showed slight subinvolution.

Hereditary Agalactia.—Keim¹⁸ attended a woman who had an attack of hysteria four days after the termination of her eleventh pregnancy. No change in size of the breasts occurred, and there was absolutely no secretion of milk. He was told that although she had had six full-term labors, two premature, and two abortions previously, she had never shown any signs of lactation. Her mother, who died of diabetes, had six pregnancies, none of which were followed by secretion of milk. Was the agalactia hereditary, or was it the result of hysteria and diabetes, respectively, in the two cases?

Lymphangitis of the Breast and Galactophoritis.—A paper by C. Maygrier¹⁹ is based upon 88 cases of each affection, these affections occurring simultaneously in 37 of the cases. After discussing various subjects, such as situation, symptoms, different sources of infection, etc., he outlines the treatment. Prophylaxis consists in rigid asepsis of the breasts, child's mouth, hands of mother and attendants, and clothing. Cracked nipples he treats by compresses soaked with alcohol and water 1:5 and with saturated alcoholic solution of orthoform. All cases of galactophoritis are isolated, and the child not allowed to nurse at the affected breast until two days after failure to express pus from the nipple. Warm compresses with boric acid solution are applied to the breasts and repeated expression of the breasts. In only one case did mastitis follow this treatment.

Plastic Deformation of the Fetal Head.—Bonnaire and Schwab²⁰ confine their remarks to deformation of the head in breech presentations with scanty liquor amnii. In these the continuous uterine pressure forces the head over until it rests upon one of the shoulders or the thorax, and causes most frequently a flattening of the opposite anterior parietal region. This accounts for the relative frequency of congenital torticollis in breech cases, and also for hematoma of the sterno-mastoid. Traction upon the body in delivery of the head brings a greater strain upon the shortened muscle, and consequently causes rupture of its fibres and formation of a hematoma.

Congenital Imperforation of the Anus.—R. Blondel²⁰ warns against an error which may be committed in operating for this condition. In feeling for the rectum he felt in the cellular tissue a rounded sac, which he drew down, sutured to the eutaneous incision, and opened. It was then recognized as the vagina. The mistake was rectified, the rectum found, and six months later the child was in good condition. It is suggested that a sound

should be passed into the vagina before suturing the rectum to the skin, to be sure that the vagina has not been seized by accident.

Congenital Diaphragmatic Hernia.—In a case described by C. Porak and G. Durante²¹ the child did not breathe and rapidly became cyanotic. The presence of the apex beat in the right mamillary line suggested transposition of the viscera, but intestinal tympany over the whole left half of the thorax showed the presence of a diaphragmatic hernia. Autopsy demonstrated the situation in the left pleural cavity of the left lobe of the liver, the stomach, duodenum, ascending and descending colon, spleen, pancreas, and the entire small intestine.

Double Monster.—Crouzat¹⁸ presented to the Obstetrical Society of France photographs and a description of a double monster living and healthy. They show oblique union of the twins, which are separate as far as the ensiform, possess a single umbilicus and abdomen, with digestive systems which apparently functionate independently, and union of the feet of one child and of part of those of the other. It is said that they are of different sexes, but this unique claim is not substantiated in any way.

Rupture of Symphysis.—W. Ruth²² puts on record a case of rupture of the symphysis during forceps delivery in a contracted pelvis. Infection resulted in an abscess of the symphysis and eventually general sepsis and death.

Rupture of the Uterus.—J. P. Simpson⁷ reports a case of rupture of the uterus occurring in a woman who had had four children. The rupture was on the posterior wall, and the child escaped into the peritoneal cavity. The woman died.

Extrauterine Pregnancy.—C. R. Roberts⁶ removed two tubal moles from a patient. One of the moles had ruptured the Fallopian tube. He believes this to have been a case of simultaneous pregnancy in both tubes. The patient made an uneventful recovery.

Cesarean Section.—G. M. Boyd³ reports a successful case of Cesarean section done on account of a contracted pelvis. The placenta was attached to the anterior wall. In four cases G. M. Boyd has found the placenta attached to the anterior wall, and he believes the placenta about as often occupies the anterior wall of the uterus as the posterior wall. He advises the careful examination of all patients under ether when in doubt as to the position of the presenting part and the degree of disproportion between the pelvis and the fetal ovoid.

J. W. Coakley⁴ reports a case upon whom Cesarean section was performed three times in six and one-half years.

J. H. Glass¹³ reports two successful cases. In both instances he performed the Porro operation. One patient had carcinoma of the cervix, which made it advisable to remove the child through the abdomen. The other woman had a septic uterus.

Retention of Dead Fetus.—According to F. Kleinertz,¹⁶

symptoms of uremia occurred in a woman at the end of the seventh month. The fetus died, the woman improved; but not until five months after the death of the fetus was there a bloody discharge. Attempts to deliver the patient per vaginam failing, Cesarean section was performed, revealing a macerated fetus of about eight months.

Relation of Maternal and Fetal Vessels in Placenta.—As the result of injection of the two systems of vessels with different fluids, K. Blaecher¹⁵ has been led to regard the villi as not being purely fetal structures, but composed of a combination of fetal and maternal vessels.

GYNECOLOGY AND ABDOMINAL SURGERY.

Operative Treatment of Purulent Collections in the Appendages.—L. Mandl and O. Bürger¹⁵ consider very fully the treatment of purulent collections in the adnexa in the light of results obtained in Schauta's clinic. They have found the vaginal route preferable in most cases. Double abdominal salpingo-oöphorectomy for bilateral disease has been discarded as giving unsatisfactory results while exposing to the dangers of laparotomy. Unilateral abdominal extirpation is permissible only where it is certain that the appendages of the other side are in normal condition. Prolonged observation and exploratory puncture are necessary to determine the innocuousness of the pus. Abdominal radical operation is suitable only in case the vaginal route cannot be employed. Radical operation through the vagina is the method of choice for bilateral suppuration or for unilateral suppurative disease with chronic inflammatory changes in the adnexa of the other side. It gives the best immediate and permanent results. Vaginal extirpation of suppurating appendages of one side is confined to cases in which puncture has shown that the pus is not virulent and in which the other tube and ovary are normal. Vaginal incision is rarely used, as its permanent results are unsatisfactory. Abdominal incision is applicable to certain cases in which the purulent collection is easily evacuated by opening the abdominal wall.

Differential Diagnosis, Tubercular Peritonitis and Ovarian Cyst.—The difficulty of differentiating encysted tubercular peritonitis in the pelvic region and ovarian cyst is illustrated by a case of each mistaken for the other by H. Dure.¹⁷ He believes that the differential diagnosis must rest less upon local physical signs than upon the following points. In favor of tubercular peritonitis are a family history of tuberculosis; signs of the existence of other tubercular lesions; a history of frequent abortions or of the death of several children from tuberculosis; general symptoms of tuberculosis, such as loss of weight, strength, and appetite, afternoon fever, night sweats, etc.; pelvic pains, menorrhagia, metrorrhagia, amenorrhea, or leucorrhea; the previous occurrence of physical signs of salpingo-oöphoritis, which is

the common origin of tuberculosis of the pelvic peritoneum; and the sudden increase in size, at intervals, of the tumor, with pain and rise of temperature, instead of gradual, constant growth.

Uterine Polypus.—A. T. Smith¹⁰ discusses a case in which a polypus excited contractions of the uterus which resembled labor pains. These pains lasted for several years. The growth was removed and the pains stopped.

Death from Vaginal Hysterectomy.—E. Lanphear¹¹ reports a death from intestinal obstruction following vaginal hysterectomy. This is the second death Lanphear has reported from this cause.

Retroversion of the Uterus.—H. Macnaughton-Jones¹ gives among the causes of this condition the following: General atonicity in the abdominal parietes by their redundancy and weight; habitual disregard of over-distension of the bladder; straining in defecation, with a corresponding habitual neglect of constipation and an overloaded rectum; perimetritic inflammations with consequent exudations or adhesions, leading to contractions, limitations of movements, or ultimate want of muscular tonicity and general relaxation of the uterine supports; all the effects and influences produced by the growth of the uterus and relaxation of its supports during pregnancy, the want of normal involution subsequent to labor, with corresponding deficiency in muscular recovery in the perinterine muscular structures and defect in ligamentous elasticity, not to speak of the permanent abnormal weight of the subinvolved uterus with its own set of abnormal, physiological, and pathological consequences. Too much stress cannot be laid on this last source. With a retroversion we frequently meet with a posterior displacement of the ovary and further inflammatory states of the adnexa.

When examining for this condition a general anesthetic is generally necessary, and the knee-chest position often renders the diagnosis clearer. The semi-prone position of Sims is often sufficient. In treating this condition skilful massage, either through the rectum or vagina, in the dorsal or knee-elbow position, is of the greatest value, combined with local treatment.

As to the prophylaxis of this condition, the writer calls attention to the necessity of not allowing the rectum and bladder to become over-distended. Women who have to wear a support and those in the postpartum state should pass their urine often. In the treatment of pelvic inflammations which often lead to retroversion, he advises such means as warm douching, massage of rectum and vagina, more prolonged rest, avoiding the dorsal position, the use of a suitable support, and the use of drugs which tend to cause absorption.

As to the actual treatment, he states that every mobile and reducible uterus should be treated in the first instance by a support, which should be worn for a space of time proportionate to the tendency there is on the part of the uterus to revert to the backward position. Associated adnexal conditions are frequently

amenable to treatment in such cases, and it should follow the reposition of the uterus. Should the adnexal condition be such as to demand operation, colpotomy is that of selection, with resection of the adnexa and the subsequent use of a support. An immovable or irreducible uterus, or a reducible uterus in which the associated conditions, either in the uterus itself, in contracting peritoneal folds, or in adnexal adhesions, make it clear that no pessary will effect a cure or enable the uterus even temporarily to remain in the normal position, should be treated by operation, the nature of which should depend on the age and child-bearing prospects of the woman; on the amount of adnexal disease and the need there may be for radical interference; on the condition of the vaginal outlet and perineum; such complications as cystocele or rectocele; and, lastly, on the extent of uterine disease that is coexistent with the displacement. The writer always performs either ventrofixation or suspension (Kelly).

Operation for Cystocele.—In the operation used by Emerson M. Sutton² the incision is made around the cervix, extending to the lateral sulci, forming the base of a triangle, the apex of which is at the meatus, the sides of which take in sufficient of the anterior wall, when the edges reunited will completely retain the superimposed bladder; denudation made as one flap; amputation of the cervix or repair of the cervix, as the case may require, being performed at the time of the first incision, and dissection of the tissues from the anterior surface of the cervix sufficiently to allow the easy reposition of the uterus. The result of this operation is a lengthening of the anterior wall of about three centimetres. This operation places the uterus in its natural position and does away with the need of suspension or shortening of the round ligaments.

Cancer.—J. M. Baldy,⁵ in discussing the diagnosis of cancer, states that the microscope as a means of diagnosis is vastly inferior to clinical symptoms and observations, and that the teaching of the day in most of our great schools of learning is in this respect as bad as it well can be, consequently the outlook for competent observers and diagnosticians for the future is bad. He³ places the number of recoveries from cancer of the cervix at five per cent, or even less, while the number recovering from cancer of the fundus is as high as 75 per cent.

Fibroids of the Cervix Uteri.—A. H. N. Lewers⁷ reports four cases of cervical fibroids. In two cases the fibroids were solitary, there being no other fibroids in the uterus. In one case there was a single fibroid in the cervix, but there were also fibroids of the body of the uterus, as well as a left ovarian cyst. The remaining case was one of a large subperitoneal fibroid arising from the posterior part of the cervix; this tumor weighed nine and a half pounds. All these tumors were removed by abdominal hysterectomy. All cases of this variety have one point in common, and that is that the uterus and tumor are practically

fixed and cannot be drawn up until the deep cervical attachments have been separated or nearly so.

Myomectomy.—J. D. Emmet³ removed nine small myomata from a pregnant uterus without causing an abortion. Seven months later the woman was delivered of a girl baby; the labor was uneventful, except that there was a laceration of the cervix and perineum. Since the confinement a ventral hernia has occurred.

Leucoma of the Vulva.—H. T. Butlin⁷ cites three cases of leucoma or leucoplakia of the vulva. The first was complicated with an ulcer which was almost certainly cancerous; the second with an ulcer which probably was cancerous; and the third also was associated with cancer. The plaques form only on the mucous surface: they have precisely the same characters as those on the tongue. In more than one instance both the tongue and vulva have been affected at the same time. The condition appears rather to be a degeneration than an inflammation. There seems to be a predisposition to the growth of cancer, and under these circumstances he believes it advisable to remove the growth freely.

Abnormal Position of Tube and Ovary.—O. Busse²⁴ discovered at autopsy an instance of failure of descent of the left tube and ovary, the other genitals being normal. The fimbriated extremity lay just below the kidney; the ovary, near its upper border. Thickenings of the peritoneum indicated the occurrence of adhesions from peritonitis during fetal life, after the time of formation of the uterus and before that for descent of the ovaries.

Supernumerary Ureter.—The patient, 18 years of age, had suffered from incontinence of urine since birth, though the bladder was emptied in apparently a normal way. E. Wertheim²⁵ discovered an intermittent flow of urine from a small opening at the border of the urethral orifice. This supernumerary ureter possessed a dilatation opposite the vaginal wall. Wertheim opened this from the vagina, created an anastomosis of it with the bladder, and closed the vaginal opening and the lower portion of the ureter. A vaginal fistula resulted, however, and four attempts to close it were ineffectual. The writer then removed the dilated portion of the ureter and implanted the upper part in the resulting wound in the bladder wall. The vaginal incision was then successfully closed. Wertheim has observed two other cases. In one cystoscopy accidentally demonstrated the presence of the third ureter, in the other it was found during a laparotomy.

Pseudo-hermaphroditism.—Unterberger²⁴ describes a case with apparently masculine external genitals and hypospadias. Operation for an abdominal tumor showed perfect internal genitals of the feminine type and sarcoma of one ovary.

Ambulatory Curettage.—F. Boukoëmsky²⁶ claims very favorable results from curettages done at an out-patient department,

and he considers this procedure safe and advisable when hospital accommodations are meagre. After the curettage his patients, 154 in number, were kept on a bed in the clinic for three hours, with an ice cap over the lower part of the abdomen and ergot by mouth. They were then allowed to go home and advised to remain in bed three or four days.

Posterior Vaginal Enterocoele.—Gouilloud²⁶ describes a large resection of Douglas' cul-de-sac which he performed for posterior vaginal enterocoele. When this condition is a prolapse rather than a limited hernia he would advise the addition of operations for strengthening the pelvic floor.

Etiology of Menstruation.—Halban²⁷ cites his experiments as showing that menstruation is due, not to any mechanical influence of the rupture of a Graafian follicle, but to the chemical influence of the ovarian secretion. The ovaries of four baboons were removed and implanted subcutaneously. Two still menstruated, but ceased to do so when the transplanted ovaries were entirely removed.

Implantation Tumors from Ovarian Adenocystomata.—E. Peiser²⁸ writes that during operations or puncture of the cyst the cells of a glandular ovarian cyst, a benign growth, may be transplanted to the abdominal wound and there develop similar tumors. These may break through the intestine and skin mechanically. On the other hand, the secondary growths may assume the characteristics of a malignant tumor, an adenocarcinoma. The practical conclusions which the writer draws are the danger of exploratory puncture for such tumors of the ovary, and the necessity for careful protection of both abdominal wound and peritoneum before puncture of or operation upon large ovarian tumors, particularly those with gelatinous contents.

Vulvoporrhesis.—This is the name applied by W. Zange-meister²⁹ to an unusual form of perineal laceration of which he has observed two examples. In each the vulvar ring, labia, and perineum had been torn from the vagina, the laceration extending through the perineum and extending forward at each side of the vulva, just outside of the hymen, nearly to the urethra. In addition the vulva was carried forward and there was a transverse laceration in the bridge of perineal tissue left just in front of the anus.

Treatment of Pruritus Vulvæ.—Having had good results in the treatment of some cases of pruritus vulvæ by subcutaneous local injections of weak solutions of cocaine and carbolic acid, L. Siebourg³⁰ attempted to accomplish the purpose by simple irrigations of salt solution. He holds that local anesthesia is caused by the pressure of the injected fluid.

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DISEASES OF CHILDREN.

Acute Dilatation of the Heart met with During Childhood and Adolescence.—A. D. Blackader¹ says that the important predisposing factor is the very rapid development which takes place in the size of the heart at puberty. For the first three years of life the heart's growth is rapid and proportionate to that of the body. From the third to the tenth year it fails to maintain this relative weight, but from the eleventh to the fifteenth year growth is again extremely rapid. Beneke states that the annual increase in the size of the heart between 7 years of age and the beginning of the development of puberty is about eight per cent annually of its weight, but during the changes which accompany puberty it increases from eighty per cent to one hundred per cent. The heart may easily prove functionally unequal to the strain which the active life of a rapidly developing boy or girl imposes. Cardiac dyspnea may arise on a slight strain and the heart wall may yield. Anemia may further predispose to this tendency, as may a depressed condition of the nerve centres arising from imperfect nourishment or over-excitement and deficient sleep. The presence of toxemia in conditions of pyrexia, especially during an attack of one of the infectious fevers, may cause cardiac dilatation; the heart walls often yield suddenly in the course of diphtheria. Acute dilatation is frequently accompanied by vomiting, according to Lees, and this symptom he regards as a danger signal, especially if accompanied by increased pallor and a feeble pulse. Dilatation may occur in influenza, in severe attacks of typhoid fever; in rheumatism also, but here it is less dangerous. Among the directly exciting causes of dilatation in youth we must place too severe or too prolonged exercise of all kinds, especially in running, wrestling, and swimming. Heart strain is especially liable to occur if severe contests are undertaken without previous training. In young girls the changes at puberty are more rapid than those in boys and are more frequently associated with anemia and an atonic condition of the heart wall. In such generally, but especially in the class which acts as domestic servants and who have much running up and down stairs to do, indications of dilatation will often be found. Symptoms and complaints in growing children of loss of strength and energy on exertion, followed by a feeling of faintness or a feeble pulse and a desire to

lie down, should always lead to careful investigation of the state of the heart wall. In the treatment of the severer forms of cardiac dilatation absolute rest in the recumbent position is necessary and should be associated with a diet nourishing, but carefully regulated to prevent over-distension of the stomach by flatulence. Liquids may have to be reduced to a minimum. Digitalis is demanded in full doses, or strychnine may be used with it. When there is a distinct accentuation of the aortic sound the exhibition of the nitrites would appear to be indicated, since by dilating the superficial systemic capillaries they may lighten the work of the left side of the heart. At the onset of the acute symptoms it may be necessary to have resort to the more diffusible stimulants, ether, ammonia, and alcohol.

Acute Fatty Degeneration of the Liver.—Arthur H. Lister² reports a case of a little girl of 6 years. The illness was one of twelve days' duration. At its commencement it resembled an attack of catarrhal jaundice, except that vomiting was more marked and quite unamenable to treatment, and there was more tendency to drowsiness than one usually sees, while at the same time the jaundice was only slight. There was nose bleeding on the third and fourth days of the disease. From this time on there was a greater tendency to a comatose condition; the temperature and pulse rose slightly, the former falling again two days before death, the latter roughly showing a gradual rise up to the last day. The highest temperature was 99.5°. Epileptiform convulsions on the eighth day and hematemesis on the ninth and following days were marked features of the disease. In a sentence, there was slight jaundice, uncontrollable vomiting, slight pain, hemorrhages, fits, coma, and death in twelve days, accompanied by a slight enlargement of the liver. Treatment was of no avail, but consisted in clearing the alimentary tract and in giving nutrient enemata. Occasional warm-water injections were of use in relieving the distressing thirst. The autopsy showed an enlarged liver in an advanced stage of fatty degeneration. Numerous hemorrhages were found in the mediastinal fat, the parietal peritoneum, the omentum, and the mesentery. All signs pointed to phosphorus poisoning, but no information could be obtained as to the possibility of such an occurrence. The clinical symptoms were typical of acute yellow atrophy, except that the liver did not shrink and the jaundice was not marked. There is difficulty in distinguishing the two diseases. In both we have the clinical symptoms which have been indicated. In both we have an active poison which may lead to acute fatty degeneration of the liver cells, with an irritation of the interstitial substance giving rise to connective-tissue increase; and while we may hold as most probable, if not, indeed, as absolutely certain, that there are cases where such a poison, whose nature is unknown, may be developed anew in the body or taken in in some way which we cannot explain, it is well to remember in cases such as this, more especially in young children and pregnant women of disordered

appetite and possibly of mental unsoundness, that preparations of phosphorus are of common occurrence in every household; and it is one's duty to eliminate every possibility of the presence of phosphorus poisoning before we can conclude safely that we are dealing with the extremely rare disease known as acute yellow atrophy of the liver.

Acute Mastoiditis after Subsidence and without Recurrence of Tympanic Inflammation.—Hiram Woods³ reports three cases in which mastoid abscess developed nine days after otorrhea had ceased in one case, twelve days in the second, and a week in the third. The probability is that the cells were infected in the beginning, and inflammation progressed, although tympanic disease subsided. Cold was used in all three cases, and in two its use was apparently followed by benefit. But the author doubts whether he has ever seen a case of threatened mastoiditis aborted by it. He agrees with J. O. Tansley that with the addition of increased trouble from hemorrhage and difficulty in distinguishing healthy from diseased bone during operation, slow recovery and demonstration of the impossibility of securing a sufficient degree of cold to kill organisms in the mastoid, it masks symptoms. In acute otitis media without evidence of fluid, without bulging of the membrane, but with hyperemia of the malleus plexus, he thinks that politzerization can do good. He has seen the pain of otitis media relieved by application to the nasal passages of cocaine, followed by antipyrin solution and gentle inflation of the middle ear.

Chicken-pox and Smallpox.—Frederick Leavitt³ writes of the distinguishing characteristics between mild and discrete smallpox and chicken-pox, summing up as follows:

Smallpox.

Any age.

Incubation, two weeks.

Headache, backache, fever, general malaise; lasting three or four days.

Worst on the exposed parts—extremities; invariably on the palms.

Progressive eruption: papules, vesicles, pustules, crusts.

Lesion includes the lower layers of the derma. Hard to rupture. Multilocular.

Temperature high (103°-105°) till eruption appears; then drops and does not rise again for a week, and not then in the milder discrete forms

Eruption quite uniform in size; has a reddened area at base; frequently umbilicated.

Painful to the touch; may itch.

Chicken-pox.

Childhood.

Incubation, thirteen to seventeen days.

No prodroma, or at most only slight indisposition.

Worst on the covered portions—thorax; rarely or never seen on the palms or soles.

Vesicles and crusts.

Lesion very superficial. Easy to rupture. Unilocular.

Rises with the severity of the attack.

Not uniform. Also inflamed area about the vesicle, but less marked.

Not painful to touch.

Lasts two to four weeks.	Lasts one week to fourteen days.
Vaccination protects.	Does not protect.
Pits when confluent on face; will occasionally mark in the discrete form.	Seldom unless infected.
Generally no complications.	No complications.
High mortality in the severe confluent and nemorrhagic types.	Nil.
Resolution by crisis.	Resolution by lysis.

Congenital Dislocation of the Hip Joint, and Spina Bifida.

—D. C. Bremner⁴ reports the case of a girl of 13 years suffering from ulcers, bedsores, slight lateral curvature of the spine, and a sharp backward curve of the spine, the sacrum and pelvis forming almost a right angle with the dorsal and upper lumbar vertebrae, the pelvis being correspondingly tilted and inclined somewhat toward the left side. In the lumbo-sacral region was a spherical swelling about the size of a cricket ball, which gave a sense of fluctuation and a faint impulse on coughing. On deep palpation one could indistinctly make out on the middle line a hollowing out surrounded by a ridge in the bone, as if it communicated with the spinal canal. Firm pressure caused much pain. On the left side there was dislocation of the hip joint, the femur being flexed on the pelvis and rotated outward, the patella pointing at about a right angle to its normal position, and the dorsum of the foot looking outward and backward. The head of the femur could be recognized, its rounded surface forming a prominence under the skin on the dorsum ilii. Separated from the head by what was evidently the atrophied and shortened neck, the great trochanter could be made out behind and below the head. The knee joint was almost completely ankylosed and hyperextended, and there was extreme talipes equinus. On the right side the thigh was flexed on the hip and the knee flexed—an attitude which was probably the result of an effort made to counteract the shortening of the left leg. There was complete loss of sensation on both sides below the knee, the power of moving both legs was slight, and the patellar and plantar reflexes were absent. Since birth the patient has never had any control over the bladder or rectum. When admitted to the infirmary and first seen by the author her general vitality was so low that it was doubtful whether she would survive more than a few days. Under treatment, however, she steadily improved as regards her general health. The main points of interest appear to be: 1. The combination of the two deformities in the same patient. 2. The recuperative powers displayed by the patient under tonic treatment. 3. The symptoms and signs which may be attributed to each condition—the spina bifida causing the paralysis of motion and sensation in the legs and the incontinence; and the dislocated hip accounting for the state of the spine, pelvis, and lower extremities, including the talipes of the left foot, which appears to be more of mechanical than paralytic origin.

Diphtheria as a Complication of Measles.—David Newton Blakely and Fred Grant Burrows,⁵ during a period of two and a half years at the South Department of the Boston City Hospital, treated 157 patients who had measles and diphtheria. Of these 54, or 34 per cent, died. (The death rate for uncomplicated diphtheria patients for the same period was 13 per cent.) Of the whole number 82 had laryngeal diphtheria, and of these 36 died. In the 82 laryngeal cases there were 47 intubations, with a death rate of 55 per cent; in the remaining 35 not intubed the death rate was 29 per cent. The authors conclude that the existence of diphtheria or the possibility of its onset should be considered in every case of measles; for the congestion of the mucous membrane of the tonsils and air passages caused by the measles process renders it especially vulnerable and an unusually good field for the growth of the bacilli of diphtheria. Nasal or laryngeal obstruction arising during an attack of measles almost certainly means diphtheria. If the initial fever of measles disappears and there is later a sudden rise of temperature, or if the cough of measles becomes “brassy” in quality or paroxysmal in character and is accompanied by an elevated temperature, the possibility of diphtheria must be considered. If the initial fever persists and aphonia develops, diphtheria is probably the cause. Uncomplicated measles in very exceptional cases may produce aphonia, but aphonia with or without a rise of temperature usually means diphtheria, and aphonia with a rise of temperature always means diphtheria. Uncomplicated measles is usually accompanied by a more or less abundant serous nasal discharge; but if this discharge becomes purulent or muco-purulent in character, or if there is a partial or complete nasal obstruction accompanied by a glairy discharge, diphtheria should be suspected and cultures taken. But if the patient’s general condition, in addition to the above symptoms, suggests diphtheria, antitoxin should be given at once without awaiting the result of cultures. In all obscure cases the patient should be given the benefit of the doubt—and *antitoxin*. There is no combination of the acute infectious diseases in which the death rate reaches so high a point as in that of measles and diphtheria.

Eruption Resembling Pemphigus Vegetans in an Infant.—E. A. Fischkin⁶ reports the case of a child 5 months old on whom an eruption broke out two days after the onset of bronchitis. There were about ten condylomatous patches on the left and about six on the right lower extremity. Abdomen, chest, and back were free from lesions, as were palms and soles. On the arms were several condylomata. Lesions on cheeks and forehead were covered with pus and crusts, and were the only ones which did not present a condylomatous appearance. Hereditary syphilis was excluded because of total absence of history and of traces in parents; because the child was born with a healthy skin and showed no eruption whatever the first four months of life, the only symptoms of disease being indigestion and emaciation;

and because there were no mucous patches in the mouth nor about the lips, no lesions on palms or soles, and no adenopathy. Mycotic disease was not to be thought of, as none produces condylomata lata. The diagnosis of pemphigus vegetans was made and appeared to be confirmed by the preceding emaciation, the starting of the disease with a bronchial catarrh, the appearance of the first lesion close to the arms, the uniformity of the lesions as condylomata, and the existence of some, though few, blebs in the periphery of the lesions. Corrosive-sublimate baths, dusting the lesions with a salicylated starch powder, and elixir calisaya internally produced so marked an improvement that the author hesitates to diagnose the case as pemphigus vegetans, although he still excludes syphilis. From the present aspect of the lesions he regards it as a trichophytosis.

Facial Paralysis Occurring Early in Acute Suppurative Otitis Media.—R. H. Kennan⁷ says that the prevailing opinion seems to be that facial paralysis arises only when the suppurative processes in the tympanum have existed long enough to be considered chronic, that is, after the lapse of time necessary for the necrosis of bone; and, secondly, that paralysis secondary to osseous necrosis and due to inflammation of the nerve in the canal is unfavorable for rapid cure as contrasted with that resulting from inflammatory action in the nerve outside the canal. The cases reported by the author, however, show that paralysis was observed on the seventeenth day of the scarlatina and the twelfth of the otorrhea in one case, eight days after the appearance of otorrhea in the second case, and fourteen days from the onset of scarlatina in the third case. Treatment, which was successful, consisted in general stimulation and nourishing diet, careful and frequent syringing of the ears with boracic acid lotion and insufflation of boracic acid powder, as well as antiseptic douching of the pharynx by the mouth and nose. In addition blisters were applied behind the ear, and Easton's syrup was administered internally. The author holds that his cases show that paralysis may arise without necrosis, and that implication of the nerve in the bony canal does not necessarily lead to a severe variety of paralysis, which may pursue as favorable a course as when the nerve is attacked outside the canal. The ages of the patients were such that accurate information could not be obtained concerning the presence of tinnitus, affection of the sense of taste, and hypersensitiveness to sound. Electrical reaction was not observed, but, in view of the rapid recoveries made, it is not likely that the reaction of degeneration would have been marked.

Febrile Stage of Gastro-intestinal Disorders in Children.—W. C. Hollopeter⁸ says that the first step in the management of these cases resolves itself into something like this formula: Given a case of acute febrile disturbance of gastro-intestinal origin, our first step would be to empty the stomach, if it has not already been accomplished, and then to give a slight enema. This, in young children from 6 months to 2 years, is accomplished by

the use of glycerin and water, about one teaspoonful of glycerin to a tablespoonful of warm water. After that use a high enema of one quart of tepid water and one tablespoonful of bicarbonate of soda. The child's buttocks are elevated at least to four inches higher than the shoulders. It is immaterial whether it is on the right or the left side or on the back, but by means of a fountain syringe holding two quarts, and with the bag of the syringe one to two feet above the buttocks, the contents are slowly allowed to enter by gravity into the intestinal canal. The author has a decided preference for this alkaline irrigation, both as a method of dislodging any foreign fermenting masses that may have been feeding the fever, and because soda solution to the inflamed and acid secretion of the intestinal mucous membrane neutralizes the pathologic changes going on in the tissues of the young child. It also acts as a sedative, cooling and quieting the tenesmus which invariably follows an acid discharge or fermentative diarrhea. After the bowels have been thoroughly irrigated, the author gives broken doses of calomel, half a grain with soda and sugar of milk, until the characteristic stool is found, and then a dose of castor oil. Children who are suffering from extensive peristalsis should not be handled unduly. After the initial bath at 95°, lasting for at least five to eight minutes, and cooled until the temperature reaches 90°, place them in a comfortable bed and for the next twenty-four hours let them be as little disturbed as possible. Temperature changes can be controlled by an ice bag to the head and one under each arm and each knee. An evening sponge bath of alcohol is refreshing. Medication after the first twenty-four hours of calomel and oil would be a prescription of this kind: bismuth subnitrate, 2 grains; salol, one-half grain; aromatic powder, one-half grain; sugar of milk, 1 grain—this dry on the tongue every two hours or with every movement. Nutrition should consist of withdrawal of solids and every form of milk food. Albumen water in the proportion of the white of one egg to a pint of water containing an ounce of cracked ice, shaken thoroughly, can be given in quantities of two to four ounces every two to four hours. Vanilla or a slice of orange or lemon may be added to make it more palatable. Toast water and gum water are good. Solid food or meat juice should not be given until the temperature has been normal for five days.

Feeble and Premature Infants.—Floyd M. Crandall^s speaks of feeble children who may be saved without the use of an incubator, but who are frequently lost from lack of certain simple precautions. Two points are to be especially considered—maintaining the body heat, and feeding. These feeble infants are very susceptible to cold, and a single chilling of the surface may prove fatal, especially during the first three or four days. No attempt should be made to dress the child, but it should be wrapped in absorbent cotton, or, if expense be an objection, in cotton batting. A thin layer of cotton should be placed between the arms and body to prevent chafing, and a small pad of absorb-

ent cotton should be placed about the buttocks. The arms should be wrapped under the cotton. A soft flannel blanket is to be placed over all and fastened with safety pins. The head should be covered by a little flannel cap, and the child placed in a large basket or small crib in which three or four hot-water bottles are constantly kept. The child should be changed as frequently as cleanliness requires, but should not be bathed, and, if very feeble, not even sponged. It may be rubbed with oil every day. The room should be warmer than an ordinary nursery, but be frequently aired. Feeding is an important but difficult problem. Many of these children are too weak to nurse. Breast milk should be drawn with a breast pump and given with a medicine dropper, but the child should be put to the breast as soon as it has strength to nurse. Where cow's milk must be used, complete peptonizing will prove very satisfactory. The composition of the milk is of great importance. For babies born from the twenty-eighth to the thirty-sixth week Rotch advises the following at the outset: Fat, 1 per cent; sugar, 3 per cent; proteid, 0.5 per cent. If the child is very feeble these percentages are to be increased slowly; if fairly strong they are to be advanced rapidly. Holt advises even lower strength, particularly of the proteid. Some of the frailest infants develop into the strongest men. It always pays to try to save a baby.

Hemorrhage from a Pyothorax.—A. Jacobi⁹ reports the case of a girl 7 years old who was operated on for pyothorax. White and inoffensive pus flowed out readily to the amount of perhaps 500 cubic centimetres, not mixed with blood. Thiersch's solution was injected; it returned with a little more pus which was slightly colored with blood. All at once a large quantity of blood was discharged, which, when the irrigation was stopped, proved to be undiluted blood. It could not come from the intercostal artery, as that was not touched. Full irrigation was again resorted to for a few seconds; the light being good and the opening large, the blood was seen oozing in quantities from tufts disseminated over the pulmonary pleura, the costal not being within view. These tufts could easily be distinguished with the fingers, extended over a large surface, and were quite numerous, large and small, some nearly a centimetre in diameter, others apparently not over the size of a pinhead. Altogether at least 250 cubic centimetres of blood were thus lost. The cavity was filled with sterile gauze, which was removed after two days, when some little fresh blood was seen to ooze from a few large granulations. Several days later the granulations had shrunk so that the thickened membrane exhibited only some flat and occasionally rough elevations of a grayish-yellow color. A careful search for a malignant tumor had no results, nor was there a suspicion of tuberculosis or of maceration and corrosion of the surface; and there was certainly no adhesion between the two pleuræ, the tearing of which could have given rise to some of the hemorrhage which took place. The child made a good but somewhat slow recovery.

The case is unique in the author's experience, and scanning the literature has not added to his knowledge on this special cause of bleeding. The case of pleural abscess behaved to an unusual degree, similarly to what may be observed in abscesses situated in looser tissues elsewhere, in which granulating tufts spring up from the surface with occasionally a very moderate tendency to blood.

Infantile Atrophy.—John Lovett Morse¹⁰ says that this term should be applied only to those cases of wasting which, in the light of our present knowledge, are primary, and not secondary to other morbid processes. It is a morbid condition of infancy in which there is extreme wasting of the soft tissues of the body without demonstrable organic lesions. It is the expression of continuous, insufficient nutrition, due probably to defective absorption or assimilation rather than to defective digestion. It occurs most frequently during the first year, but almost never in breast-fed infants. Unhygienic surroundings and inherent weakness of constitution are predisposing factors, and unsuitable food favors its development. The true cause, however, must be some disturbance of the functions of absorption or assimilation, but the nature of these disturbances is as yet unknown. The earliest and most prominent symptom is loss of weight, which is constant and progressive. In the typical case there are no symptoms of disturbed digestion, but these may arise later as the result of complications. Death usually occurs as the result of gradual progressive failure, but may be hastened by complicating disorders of the gastro-enteric tract or lungs. Convulsions may occur from sinus thrombosis. The differential diagnosis is from starvation, wasting secondary to functional or organic diseases of the stomach or intestines, congenital syphilis, and disseminated tuberculosis. In gastro-enteric diseases the wasting is not the one prominent symptom, and it is not an early but a late symptom. The diagnosis from disseminated tuberculosis is difficult and often impossible. The prognosis is always grave. If recovery takes place, however, it is complete. Treatment consists of feeding with breast milk, modified cow's milk with a low percentage of fat, a moderate percentage of sugar, and a somewhat high percentage of proteids. Whey mixtures are good. Cleanliness, fresh air, and sunlight are of importance. The body temperature must be kept up, as the vitality of these infants is low. They must not be handled more than is absolutely necessary.

Infantile Diarrhea.—William H. Robey, Jr.,¹¹ says that the treatment of this condition is obviously: (*a*) to cleanse the bowel of the bacteria and their toxic products; (*b*) to give the remaining bacteria as unfavorable conditions as possible for further production; (*c*) to soothe the irritated intestine where the continuance of the condition makes this necessary; (*d*) to support the patient against constitutional symptoms, as fever, nervous irritability, etc., as in other acute diseases of childhood; (*e*) to guard against infection of others by isolation when possible,

and by carefully washing the hands after handling the stools, in order not to infect other food and common household articles. Naturally the small intestine must be cleansed by a purge, and for this purpose calomel, one grain, is given in one-tenth grain doses at half-hour intervals. Castor oil is apt to be vomited by infants, but the calomel is apt to allay vomiting. Washing out the bowel may be done twice daily, as it seems to allay the fever and the nervous irritability of the child. Food should be withheld for twenty-four hours, and albumen water (whites of two eggs added to a pint of boiled water with a pinch of salt and a teaspoonful of brandy) given—a half-teaspoonful every two hours. Sterile water could be given just as well, but, in dispensary practice especially, the mother is more ready to carry out this very important part of the treatment if she is giving what she considers to be a food. If there is vomiting, the stomach must be washed out as well as the bowel, and this can be done with the same kind of catheter. If the temperature is high and the nervous symptoms are marked, a tepid bath will be a valuable addition to the treatment. After twenty-four hours the majority of cases require no further medication and depend for continued improvement on the gradual resumption of food. A weak modification of sterilized milk is best, the point being to have the percentages low enough. Breast-fed babies seldom have diarrhea, and when they do are easily returned to the breast after twenty-four hours' starvation, especially if the interval between feedings is increased. When there is still some irritability of the bowel, give the subnitrate of bismuth in at least twenty-grain doses every three hours, after an initial purge.

Injuries of the Head in the New-Born.—Andrew F. Currier¹² says that no one will deny that the obstetric forceps are used far more frequently than they were a generation ago. The result has been, on the whole, favorable to safe delivery and subsequent well-being of the child, but a train of evils has also attended the use of this beneficent instrument, including the untimely or injudicious or unskilful application, with occasional destructive results to the mother and very frequent damage to the child, its head being bruised, the bones fissured or fractured, the blood vessels torn, and the brain compressed. The injuries may involve (1) the parts which are external to the cranium; (2) the bones of the cranium; (3) the structures within the cranium. Under the first head we have the effects of a pressure which impedes the circulation and ruptures blood vessels within the scalp; pressure, whether by forceps or the walls of the pelvis, may also bruise or crush the nose, the eyes, the lips, or the ears, and produce deformities which will be permanent. There are also the so-called birth palsies of Gower, one side of the face being usually affected by undue pressure with the forceps over one or the other branch of the facial nerve. Fortunately such injuries are usually either of short duration or they accompany other more serious injuries which speedily result in the death of the pa-

tient. 2. The bones of the cranium may be indented, fissured, dislocated, or fractured. The frontal and parietal bones are the ones most frequently injured. 3. Injuries to the structures within the cranium are the most serious of all, and, if not at once destructive of life, may produce such an effect on the nervous system that mental development is arrested and idiocy, epilepsy, insanity, or some form of paralysis becomes the heritage of the individual. Hemorrhage within the cranium causes perhaps more of the severe results which attend labor than any other. Elliott gives the following occurrences of hemorrhage within the skull: 1. In every variety of labor, even when all seems favorable. 2. After birth when everything seems to promise freedom from risk. 3. In all cases, even where premature labor has been induced to diminish this among other dangers. 4. *In utero* before labor has begun. The result of the injuries under consideration are immediate death, death after a few days or months, recovery with permanent lesions of the skull and perhaps with such injury to the brain that its development is arrested while certain portions of the body remain paralyzed and useless. Treatment in cases of facial paralysis is not without importance, and it is probable that life might be saved in many cases in which the injury is overlooked or in which its seriousness is underestimated. In every case in which the labor has been severe or protracted, the cranium should be carefully examined to detect a possible fissure, fracture, or depression of the bone. Any treatment which may be necessary should be instituted as soon as possible after birth—within the first few days of life if the condition of the patient warrant it. Three cases are recorded, among those which have been analyzed, in which the scalp was incised, the depressed bone elevated, and the patients' lives saved. In a fourth case the bone was trephined and elevated, a cure also resulting. The principle seems to be a sound one that these injuries are to be treated as nearly as possible as they would be treated at a later period of life, the same regard being paid to detail as would be proper and successful at any period of life. The following conclusions were drawn from a study of more than 60 cases in which the skull was injured in the process of birth:

“Indentations and depressions of bone showed 2 of the right frontal, 16 of the left; 5 of the right parietal, 9 of the left; 1 of the right temporal; 1 of the occipital and left parietal. The depressions varied from half an inch to two inches long, half an inch to one and a half inches deep, and three-fourths of an inch to one and three-fourths of an inch wide. The marks and depressions disappeared in most cases in a few weeks or months, but in some cases they remained visible for years.

“In 17 cases there were fractures of one or more bones. In 1 case there were extensive dislocations of cranial and facial bones. In 5 cases the bones were fissured. In 5 cases the scalp was more or less extensively lacerated. In 5 cases the brain was injured. In 4 cases there were injuries during fetal life.

“There were 21 forceps deliveries, 3 high forceps, and 3 versions. There were 12 normal deliveries, and 7 labors were prolonged, the period varying between fifteen hours and six days. There were three precipitate labors. There were six cases in which there was tumor of the scalp. In 23 cases there was hemorrhage of one variety or another.

“Of the abnormal presentations 2 were breech, 1 face, 1 face, arms, and cord, 2 occiput posterior. There were 5 cases in which there was coma and 6 of convulsions, 4 of paralysis, 1 of idiocy. In 24 cases there was deformity of the pelvis of one kind or another.

“Death occurred in 26 cases from various causes. In 3 cases the scalp was incised and the bone elevated and in 1 there was trephining and elevation.”

Measles Complicated by Appendicitis.—Harold Williams¹³ reports the case of a boy of 12 years suffering from measles, who on the second day of the eruption developed severe pain in the right side, the character of which led to a diagnosis of appendicitis. Immediate operation was decided on and performed, and, although the boy had a delicate physique, the results were in every way satisfactory. The appendix was found to be in a condition fully justifying surgical intervention, a portion of it evidently becoming gangrenous. The event proves, so far as can be judged from a single case, that the complicating presence of measles is not a contraindication for the operation for appendicitis under circumstances in which the highest surgical skill is obtainable.

The Pancreas in Infective Diseases of Children.—Dante Pachioni¹⁴ thus sums up the results of his investigations on the subject: 1. In the various infective diseases of childhood the pancreas may undergo degenerative or inflammatory changes, the degree of which will be in direct relation to the gravity and duration of the disease. 2. The degenerative changes appear to be the more frequent, fatty degenerative having been found of cells of the acini, Langerhans' isles, and the endothelium of the blood vessels in various cases of diphtheria, scarlatina, and measles. 3. The inflammatory changes consist of hyperemia, hemorrhages, and cellular infiltration of the connective tissue. 4. Increase of the interstitial connective tissue was found in a case of grave congenital syphilis. 5. In the majority of cases of diphtheria there is fatty degeneration of the acinous and insular cells and the vasal endothelium. 6. By the subcutaneous injection of diphtheria toxin in animals we obtain grave degenerative lesions accompanied by intense hyperemia. 7. In four cases of tuberculosis no tubercles were found in the pancreas, but only slight fatty degeneration. 8. In chronic enteritis no sclerosis from angiopancreatitis was found. 9. In the study of the lesions found in the pancreas we must always bear in mind the fact that cadaveric decomposition causes marked changes in that organ. 10. The clinical diagnosis of the pancreatic changes in

infective diseases appears to be impossible at present; still we may suspect them to be the origin of the transitory glycosuria and the profound and rapid emaciation sometimes seen during the course of such diseases as diphtheria and scarlatina.

Spinal Analgesia.—William Seaman Bainbridge⁹ reports twelve operations on infants and young children during spinal analgesia. They were performed for the relief of phimosis; inguinal hernia; prolapse of the rectum; genu varum; talipes equino-varus; tuberculous arthritis of knee joint, with contraction of the flexor tendons of the thigh; cystitis and vesical calculus; and cellulitis of left calf, with a discharging sinus leading to dead bone. The author finds that children of all ages stand this method exceedingly well. They may cry out before or during the injection, but they soon quiet down and usually remain calm during the operation. In all cases the ether method of sterilization of cocaine and eucaine was employed. A short, bevelled needle having a steel point, the remainder of the needle down to the shank constructed of a soft metal, was used in order to avoid the possible danger of breaking should the patient struggle. The author has given what seemed at the time large doses of cocaine, but in only one instance did any alarming symptoms occur. In this case it was impossible to say whether the injection was the cause or the disease from which the patient was suffering. Usually the increase in the drug has resulted in a more satisfactory analgesia and fewer after-effects. One of the cases reported is the second instance on record of general analgesia. The writer has found beta-eucaine to be less reliable than cocaine.

Summer Diarrhea of Infants.—J. D. Windle¹⁵ says there can be little doubt that micro-organisms play an essential part in the causation of the summer diarrhea of infants by the brewing of intestinal toxins, and experience leads to the inference that they are introduced with the food. Thirst has an important bearing on the subject of over-feeding, and thus becomes an indirect cause, the prevention of which is a valuable means of prophylaxis. Bottle-fed children are especially thirsty in hot weather, for the reason that their food is usually given as concentrated as in cold weather. The thirsty infant takes the bottle ravenously, gets over-fed, and an acute attack of vomiting and diarrhea ensues. The amount of water lost in the stools and by vomiting and perspiration is out of all proportion to that taken in; in most cases none is absorbed, vomiting being constant. The excess must then come from the blood and tissues. Thirst is the cause of the restlessness and moaning—symptoms often wrongly interpreted as due to physical pain. The enormous loss of weight, sunken fontanelles, flaccid skin, scanty micturition, dyspnea, and cyanosis are due to the same thing—dryness of the blood and tissues. The thick, tarry blood stagnates in the right heart and venous system, the systemic pressure is lowered till it sinks to *nil*, and the heart ceases to

beat. Stupor, coma, and convulsions are due to the action of toxins on the nervous system. The vital indication is to supply *water*, which at once relieves the most urgent symptoms—thirst and vomiting; the blood vessels of the stomach suck it up like a sponge; it refills the emptied vascular system, the blood pressure is raised, the heart regains its vigor. The child will probably fight shy of the first teaspoonful, fearing beef juice or medicine, but will take the next and all we give it up to half a pint with greed and satisfaction. The calm and sleep which follow tell us how much it was needed. Therefore stop food and stimulants of all kinds; give boiled cold water, as much and as often as the child will take. This exclusive water diet may be continued with perfect safety up to forty-eight hours, but is rarely needed longer than twelve or twenty-four hours. Tepid sponging if there is fever, hot dry packs for collapse, large linseed meal poultices over the abdomen for pain, are valuable auxiliaries.

Symptoms of Typhoid Fever in Infancy and Childhood.—J. P. Crozer Griffith¹⁶ says that the symptoms of this disease in childhood often differ materially from those seen in adult life. Two methods of onset are characteristic. In the first the peculiarity is the indefiniteness; the walking typhoid of adult life is the rule in children. The second form is characterized by its suddenness. The child is in some cases taken with vomiting and has decided fever from the start. In other cases there are two or three days of fever and malaise, and then perhaps the roseola is discovered. In infants both the earlier and later symptoms are most vague, and very frequently only the presence of the serum reaction will distinguish the case from one of indigestion, enteritis, or influenza. The duration of the disease is on the average distinctly shortened. Fourteen to twenty days is a general average length. Abortive attacks lasting about a week are quite common in childhood. The whole course of the disease is milder than in adult life. The typhoid roseola appears to be as frequently present; herpes labialis is very rare. Enlargement of the spleen is probably always present. Respiration offers nothing peculiar. Epistaxis is probably nearly as frequent as in adult life. The temperature is subject to still greater variations; sometimes it rises rapidly without the usual step-like ascent. Often it remains high at the acme of the disease, with little tendency to morning fall. Very often it falls toward the end of the attack with much greater rapidity than in adults. The tongue is less liable to become dry. Vomiting is a more common initial symptom. Diarrhea is more liable to be absent. Abdominal distension is not often a troublesome symptom, which is in sharp contrast to the tympanites so common in adults. Hemorrhage is of rare occurrence, and the same may be said of perforation. One of the characteristics of typhoid fever in children is the tendency for the nervous symptoms to predominate over the intestinal. But this does

not imply that nervous symptoms are more common or more severe in the disease in childhood than in adult life. On the contrary, they are frequently trifling or absent. Extreme torpor and the tendency to coma, coma vigil and carphology, occur much less often than in adult life. Headache is a common symptom; slight delirium is apt to occur. A certain degree of apathy is very common. Pseudomeningitis is not infrequently seen at the beginning and may cause confusion in diagnosis. Aphasia is a nervous symptom rather to be considered as a complication.

Tubercular Peritonitis with Strangulation of the Appendix by Adhesions with the Ileum.—Charles Greene Cumston⁶ reports the case of a boy of 6 years whose symptoms pointed to gangrene of the appendix with a probable perforation. Operation was performed, and when the peritoneum was opened out gushed about 200 cubic centimetres of lemon-colored liquid, and by inspection the serous membrane was found studded with miliary tubercles. Numerous soft adhesions covered the cecum down in the pelvis, but after these had been carefully broken down the cecum with the appendix was brought out of the abdominal incision. The cecum and ileum were studded with tubercles and were in a highly hyperemic condition. The appendix was bound down to the ileum by a band of adhesion about 2 centimetres wide, which strangulated the tip of the appendix; but perforation had not taken place, although the end of the organ below the constriction was gangrenous. The abdominal cavity was carefully explored, but the numerous adhesions between the coils of intestines were respected, the cavity was wiped out with gauze sponges, while the right iliac fossa received especial attention. The abdominal incision was then closed with buried layers of catgut for peritoneum, muscle, and fascia, with silkworm gut for the skin. The patient recovered rapidly, and six months later no pelvic symptoms have recurred. The thoracic viscera are apparently in good condition and the boy is making flesh. Microscopical examination of the appendix showed the lesions to be tubercular.

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ORIGINAL COMMUNICATIONS.

INDICATIONS, TECHNIQUE, AND REMOTE RESULTS OF
SALPINGOSTOMY AND OF RESECTION AND
IGNIPUNCTURE OF OVARIES:

WITH RECORDS OF ONE HUNDRED AND FOUR CASES.*

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DEGENERATION of several or numerous Graafian follicles or of corpora lutea of an ovary into small cysts that are not neoplasms is of frequent occurrence. The "small cystic degeneration of ovaries" originated with Hegar. They are undoubtedly sometimes sequelæ of systemic infections, diseases encountered in earlier life, but most frequently they are the result of long-standing and persistent passive hyperemia of the ovary with or without a supplementary infection. All pathological anatomists regard them as an abnormality; most of them, like Virehow, Klob, and Orth, as decidedly pathologic and proceeding from pathologic conditions. By a few, like Ziegler and Nagel, they are regarded as hypertrophic follicles that have not ruptured because either the follicle membrane or the tunica albuginea of

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the ovary presented too great resistance, or because of pseudo-membranous deposits and adhesions upon the ovary. The abnormality, especially in its early stage in most instances, is that of edema or hydrops of the follicles, in which the ovules die sooner or later. And the principal predisposing, if not also exciting, cause of it, here as in other parts of the body, is persistent hyperemia of the parts, usually from an impeded venous circulation. This impediment may result from reduction of the lumina of the efferent vessels by the contraction of adjacent inflammatory connective-tissue infiltrations or deposits; but it more frequently results from displacements—notably descensus—of the ovaries, such as they most frequently undergo in connection with backward displacements of the fundus uteri. As the weight of an ovary becomes increased by its edematous or cystic follicles, a *circulus vitiosus* becomes established against its welfare. The additional weight of the organ causes additional traction upon its supports and accordingly impedes its venous circulation. This, in turn, increases the transudation into the follicles and the weight of the organ.

These cystic follicles in ovaries can frequently be palpated and recognized by the tenseness, tenderness, and globular contour of the ovary. They can sometimes be easily ruptured by compression. This occurs not infrequently during accurate examination. It does no harm, as the contents are innocent; but it also does no permanent good, as the cysts generally re-form. And this would probably also be the case after mere incisions or punctures in operating.

That these degenerate follicular and corpus-luteum cysts are not an innocent thing in the subjective health of women, but that they quite uniformly cause more or less marked and constant local or distant pains and other gynecologic symptoms, is well known to all competent and unbiassed physicians of experience in these disorders who have carefully observed each of a larger number of gynecologic cases for a longer period of time, and have made frequent and thorough bimanual examinations in each case both before and after effective surgical relief for the disorder was instituted. Ovaries in this condition cause much more pain, and cause it more uniformly, than do others that are the seat of actual cystic neoplasms whose size is greater than that of the inflammatory follicle cysts. As long as the neoplasms have not attained a size sufficient to encroach upon the adjacent organs decidedly, they are frequently, if not generally,

devoid of pain and are only incidentally discovered. The pain from the follicular cystic ovary, as we know, is not limited to the vicinity of the organ, but commonly extends upward in the direction of the kidney and to the intercostal nerves of the same side. Quite frequently it extends into the hip and down the sacro-sciatic nerve; occasionally it involves the anterior crural. Backache, bearing-down sensations, leucorrhea, dysmenorrhea, and frequent micturition are common as signs of an associated pelvic hyperemia and a consequent endometritis, at least of a catarrhal nature.

But, in addition to these ovaries that have undergone multicystic degeneration, there is another class of ovaries that also come into the domain of possible conservative surgical treatment in women not near the menopause. These are the seat of actual neoplasms, but they have not been completely disintegrated by them. The growths—usually cysts, and only those of the most benignant character, like parovarian cysts, dermoids, and simple non-proliferating and non-papillary cystomata—can often be removed in such a manner as to leave a remaining fragment or shell of ovarian substance *in situ* and sufficiently nourished. The details of two exemplary cases with neoplasms are published elsewhere.²³ In one the remnant of ovary was dissected up in the form of a flap, with its base upon the tumor pedicle, the latter then separately tied and cut off, and the ovary flap folded and stitched upon itself.

In another case, after the removal of tumors, a piece of fairly normal ovarian substance about half the size of a normal ovary, but with its surfaces all denuded, remained attached only by a small vein. It was swung around and implanted upon a scarified spot upon the posterior surface of the body of the anteverted uterus by three fine catgut sutures. Menstruation recurred in these patients after five and eight weeks respectively, and has appeared regularly during the fifteen months since the operations, while the subjective health of these patients is as good as if no pelvic disorder had ever existed.

The lamented Carl Schröder¹ was the first to practise and publish this conservative treatment of ovaries in 1884, when he reported 5 cases of bilateral disease of appendages in which he strove to retain ovulation and menstruation for the patients by retaining a macroscopically sound portion of one ovary. He drew severe limitations for the procedure: that the patient be not near the menopause nor already the mother of a large num-

ber of children; that the tissue to be preserved be safely healthy; and that there be no suspicion of malignancy or of papillomata on any portion of the internal generative organs.

August Martin² at that time, in discussion, was inclined to disapprove the treatment, but narrated a case in which he had punctured a large hydropic follicle in an only remaining ovary, and subsequently had observed two mature births in the case. But in 1889 he himself published 10 cases of actual resection of partially diseased ovaries; in 1891, 11 cases more; and in 1893, 6 additional cases. One of the 27 cases died; 24 cases of the remainder were available for prolonged observation afterward. Of these, 2 had recurrent disease and 8 became pregnant; and among 40 salpingostomies one became pregnant. Aside from these two men, up to this time (1893) Von Winckel,³ Hofmeier,⁴ Schatz,⁵ Zweifel,⁶ and P. Müller⁷ approved the treatment, Müller suggesting instead to puncture the cysts and then use thermocautery; but Hegar,⁸ Leopold,⁹ and Fritsch¹⁰ opposed it. In the same year Pozzi¹¹ published 12 cases of conservative surgery upon ovaries. Six of these consisted of resection and 6 of ignipuncture. Eleven of these patients were cured of their complaints, while in one hysterical case only a temporary improvement resulted. Routier on that occasion claimed, in opposition, that in all such cases in which he had left one ovary further operation had become necessary. In 1895 Donnett¹² again published Pozzi's total number of 23 cases, of which 19 were reasonably satisfactory and 3 required a second operation. Four of the entire number became pregnant. Pozzi practised deep ignipuncture for diffuse chronic ovaritis. He did not do salpingostomy, because he thought the epithelial lining in occluded tubes was too much destroyed to convey an ovule.

In America, W. H. Polk¹³ was the first to undertake this laudable work and publish its results in 1891. In 6 cases in which the occluded abdominal end of a tube was simply opened without amputation of the end, 3 were found favorable on examination, 1 bad, and 2 unknown (died). In 4 cases the infundibulum was amputated; of these, 3 were good and 1 unknown. In 3 cases an exploratory incision was made in an ovary and all were found good. In 6 cases several cysts were enucleated from an ovary. Of these 4 were found good and 1 bad on examination and 1 unknown.

In 1895 Friedrich Matthaei¹⁴ (Berlin) published 6 cases of resection of one ovary in bilateral cystic neoplasms, 4 of which

were dermoids. There was no recurrence of disease in any case; and 5 of them became pregnant and bore out to maturity in all but one case that was not yet mature. Burrage,¹⁵ in 1896, reported a small number of cases of salpingostomy and resection of ovaries through a vaginal incision in the cul-de-sac, some of them in conjunction with the Alexander operation. Results are not mentioned until 1900, when he gives a good report and analysis of 85 cases that could be traced in which salpingostomy or resection of an ovary had been performed a year or more previously. In 41 of this number there had been pus somewhere in the adnexa. A subjective cure was obtained in 60 cases out of 85. An anatomical cure was achieved in 33 out of 57 cases examined. Fifteen pregnancies followed in all, but none through an opened tube. In 5 cases that were unsuccessful a secondary operation was advised.

A. P. Dudley¹⁶ reported 88 cases of such conservative treatment in 1898. He observed 14 cases of pregnancy among them afterward, 8 of which matured, the remainder being immature or having aborted. He says: "In all the 88 cases I have never seen inflammation follow in the appendages that could be detected by careful bimanual touch, except in one case which was from gonorrheal origin." But also: "I have not been able to trace them all in their after-history." He reports also two gonorrheal cases of bilateral pus tubes, in which he saved a part of an ovary with good results, during an observation of less than a year.

C. Martin¹⁷ (Birmingham) favors resection of ovaries in cases of follicle cysts, dermoids and fibroids of the ovary, and has practised it in a few cases. Results not specified.

R. Gersuny¹⁸ has resected ovaries for follicle cysts, and in one case each of dermoid and cystoma, with satisfactory results. He regards it as applicable to these, but in case of tumor with surface papillomata and in papillary cystomata it should be carefully avoided.

A. Maximo (Russian) has vivisected 40 rabbits and 2 guinea-pigs. He either excised a wedge from an ovary or incised it, and killed the animals in periods of time varying from five hours to eighty days afterward, and examined the ovaries microscopically. He determined that not only the germinal epithelium did multiply mitotically and cover a defect on the surface, but that the other ovarian tissues possessed a regenerative capacity also.

In opposition to the favorable views and the encouraging experiences noted the following are recorded: H. C. Coe²⁰ publishes 8 cases in which sickness continued or recurred and required a second operation; or the expected menses did not continue to come and the premature menopause was not avoided, but simply delayed somewhat. He warns against resection. L. Fischer²¹ (Vienna) reports removal of bilateral pus tubes by anterior vaginal section. A remnant of right ovary remained involuntarily. This caused trouble in five months afterward and required a laparotomy in two years for removal of an ovarian cyst. Waldstein²² reports 4 cases of bilateral septic disease in which Schauta or his assistant Schmit performed vaginal hysterectomy, but a part of an ovary remained involuntarily. Cystic tumors developed from the remnants in all the cases, and two required removal subsequently. Schauta is of the opinion that saving one ovary, or a part of one, is a mistake (when the uterus is removed); that the ovary does not continue to functionate in most cases, but either atrophies or undergoes degeneration, and therefore does not greatly lessen or delay the nervous disorders of the premature menopause.

Inasmuch as there is still so much difference in the opinion and experience of good men as to the merits of this conservative treatment of these important female organs, notwithstanding that it is already favored by probably a majority of all creditable operators, it is very desirable, in view of the great importance of the subject, that as many cases as possible in which it has been applied be carefully noted and observed long enough and then reported. For we need not merely to achieve a general recognition of its merits, but also to understand more uniformly under what conditions it is applicable, what are the best approaches into the pelvis for its execution, what is the most auspicious choice between resection and cauterization by the thermo-cautery, and what the minimum aseptic and other requirements for its success.

To assist in this direction the following table* is offered of 104 cases that could be followed and found out of a total number of 115. Of these, 9 were performed by anterior vaginal celiotomy, 36 by median abdominal section, and 59 through the dilated internal inguinal rings in conjunction with an Alexander

*This table will be published in the volume of Transactions of the Association, to which those readers who wish the details are referred.

operation. They are therefore arranged in three classes according to the route chosen to get at and deal with the parts.

Choice of Operation.—Common to all these classes is the prospect and intention to save the uterus and one or a part of one or both ovaries, with or without a connecting tube, and to put the parts so saved in the most favorable position and condition possible. Under this conservative policy I choose, for the vaginal route, the cases that present probably no pus in or about the adnexa and that have no retroversion to be cured, and notably elderly women with marked descensus uteri who either are or may be made sterile and subjected to a thorough vaginofixation of the uterus in conjunction with thorough plasties upon the pelvic floor. This route is very good for extirpation of adnexa, but is very unfortunate for this conservative surgery upon them. The degenerate conditions in the adnexa for which they are resected or cauterized are largely due to their previous displacement—descensus. The effect is temporarily remedied by way of the vagina, but the cause cannot be removed by that route, and if, exceptionally, such displacement has not figured in their degeneration, then it is induced violently by the operator in drawing the organs down for treatment, and what they gain in condition they lose in position.

For the second class (median ventral section) I choose all cases of this kind in which there is probably pus or its equivalent present, or very severe fixations, no matter what the position of the organs. In order to resect ovaries and tubes properly, not to do too much violence to their most important lateral supports, and in order to suspend the reconstructed organs upon the lateral pelvic walls—their only normal location—and in order to get the required access, for this purpose, to the sides of the pelvic basin, the abdominal incision must be of good size and the exposure and manipulation of intestines is considerable. All this is avoided, in cases where pus or its equivalent and extreme fixations are probably absent, by choosing either the vaginal or the inguinal route. For the latter—the third class—I choose all patients of this kind who have a retroversion (not marked descensus) to be cured, and who have and ought to retain the capacity to bear children without the liability and probability of a return of their retroversion, etc., after a mature birth. This higher, more ideal requirement, which I have named the *double test of pregnancy*, has so far been proved to be achieved only by thorough shortening and anchoring of the round ligaments via their natural chan-

nels. And as, fortunately, the internal inguinal rings are very elastic and are located each exactly in front of the normal location of the ovary and ampulla of the tube and very near to their lateral attachment or support, therefore these small and delicate organs, hanging from their fixation point directly back of this natural opening, can be swung forward without doing violence to their more important supports, and can be drawn into or out of the temporarily dilated internal inguinal ring more easily and naturally than into any other opening of equal size in the abdomen or pelvis that can possibly be made; and their greater accessibility there gives a much better opportunity for the exercise of the most minute and exact dissection and suturing upon them, as well as for suspending them when needed.

Technique of Resection, etc.—Via the vagina, the ovaries are usually not accessible enough for exact resection. Ignipuncture with a Paquelin cautery is therefore the most advisable procedure there. Dührssen, who practises this very much, does nothing better. This is likewise to be preferred, irrespective of any route of operation, in cases where pus, etc., was extruded anywhere in the case, or where confined pus is probably present in the occluded tube of the same side, and in gonorrheal cases that are on the doubtful border of admissibility to this conservative treatment. This applies naturally mostly to the median ventral operations. In the safely aseptic ventral and nearly all the inguinal cases I prefer to do resection. Larger single surface cysts are dissected out from the ovary and the wound is closed by very fine catgut, after its edges have been trimmed, if necessary. In case of deep-seated cysts, especially if multiple, a longitudinal incision is made on the free border of the ovary, extending about half-way through to its hilum. From the sides and bottom of this incision the various cystic follicles are dissected out. Then, if the edges of the incised wound have become membranous flaps devoid of ovarian stroma, they are trimmed down, and the remaining wound is closed with usually two tiers of continuous fine catgut sutures, one placed more deeply to control the bleeding and the other coaptating the edges.

In salpingostomy I have usually opened up the occluded end, if possible, milked out the tube contents, if any, to see that they were not purulent, then made a short longitudinal incision in the opening to make it larger, and then everted the edge of the mucous lining and sutured it to the outer serous and muscular layers with interrupted sutures of fine catgut. When the ampulla was

much enlarged or could not be opened up, I have amputated it, enlarged the opening of the tube stump, and sutured as stated above.

Requirements for Success.—1. Perfect sterility of all instruments, suture material, sponges, and towels that are made use of, and careful walling off of the parts temporarily eviscerated and operated upon from contact with the skin or from an infected wound, and the attainment and maintenance of the nearest possible approach to sterility of the operator's hands and of those of his immediate assistants, preferably by the additional use of sterile rubber gloves by every one who comes in contact with not merely the wound, but also with any of the objects used in it.

2. The use of fine and absorbable suture and ligature material only, and fine non-cutting needles—preferably curved milliner needles—in order that the amount of foreign matter introduced in the form of sutures and knots may be limited to the lowest possible amount.

3. The use of continuous sutures, in the manner above mentioned, requiring only two knots; and the employment of much careful judgment in placing enough but no more sutures than are actually needed, and in avoiding excessive tension in them.

In the first section, or class, of the table 9 cases of vaginal celiotomy are given, all of which were for results of inflammatory conditions—none for neoplasms. All except one were parous women and were married. In each case one ovary was removed and the other one treated with the thermo-cautery. For the single unmarried nullipara both ovaries were resected, and she constitutes one of the two decided failures in this class. Two of the others have frequent pain, partly from the remaining ovary, but can discharge their household duties. Only 5 of this class have no such complaints and are in good health otherwise. Average period of observation of these 9 cases was $17\frac{1}{2}$ months.

The table of the second class comprises 37 cases with a somewhat severer grade of disorder than was present in those of the other two classes, for 17 of them presented pus at the time of operation; 25 were parous women and 27 were married. The average period of observation was $22\frac{1}{8}$ months. In 4 cases the resection or restoration of one or both ovaries or of one tube was performed in conjunction with removal of bilateral ovarian cystic neoplasms, and in 33 cases incidentally to the removal of parts of these organs that were destroyed by infection and inflammatory processes. Salpingostomy was done 6 times, resection of one

ovary 29 times, and of both ovaries twice. In 9 of the 17 cases that presented pus the thermo-cautery was used. Suspension of the ovary and tube of one or both sides was done in 8 cases. A subjective cure, and, as far as examined, also an anatomical cure, was found to be present in 31 cases, or about 86.11 per cent, at the end of their several periods of observation. But in three cases this was not attained until after three, six, and twelve months, respectively, after operation. Five of the remaining cases, or about 13½ per cent, were able to work, but had frequent pain, for which the resected ovary was probably partly to blame. Six of the cases with normal ovaries were somewhat disturbed with other affections clearly not due to the resected organs. Only one, or less than 3 per cent, of the 37 cases (17 of which presented pus at the operation) had an anatomical recurrence—cysts that demand a second operation.

The third table presents the substantial data in each of 59 patients, not near the menopause, who had pronounced retroversions of the uterus that were complicated in many cases with adhesions, and in all of them with degenerate conditions of the adnexa that required resection of some parts, and in many instances also removal of other parts. Twenty-eight of these were parous women, and 35 were married. True neoplasms were not dealt with, aside from a few very small parovarian cysts easily taken out. In 17 cases both ovaries were resected. In 1, one was resected and the other cauterized. In 41 cases only one—frequently the only remaining ovary—was resected. Salpingostomy was only done once, and suspension of an ovary and tube nine times. The average period of observation in these 59 cases was $22\frac{4}{9}$ months. Forty-eight were examined by myself or by one of three other physicians. In the remaining 10 cases a complete and explicit statement in writing by the patient was accepted. In 52, or $88\frac{8}{9}$ per cent, of these cases the parts here treated of were entirely well. But in 7 cases this was not obtained until after respectively three, four, six, six, six, six, and eight months after operations; 5 cases, or about 9 per cent, were never disabled, but had frequent pains, for which a resected ovary was or might be blamed. Two cases were failures, one anatomically, having a recurrent cyst, and the other one subjectively, at least; but she is a decidedly hysterical and neurasthenic subject. Twelve of the 49 complete and of the 5 partial successes were not in perfect *general* health, owing to moderate disorders not related to the ovaries or tubes. Pregnancy followed

in one of nine vaginal celiotomies and in one of the 37 median ventral operations, both going to term. Of the 59 inguinal cases, 8 became pregnant. Of these, 5 matured, 2 had provoked abortions, and 1 aborted without known cause. (About three years ago another patient, who had been operated upon about two and a half years previously, gave birth to a normal child. The tube and ovary of one side had been removed and the remaining ovary two-thirds consumed by a Paquelin cautery. Amenorrhea continued after this for eighteen months, and then pregnancy still followed.)

The most important facts shown by these statistics are that a perfect cure of the organs under discussion resulted in only 5 out of 9 cases of the vaginal operations (too small a number for percentages); that, on the other hand, 86 per cent of the median ventral and 88 per cent of the inguinal cases recovered complete health of the parts, while a small additional percentage were partially relieved, and only about 31½ per cent were positive failures.

Conclusions.—1. In patients who are not near the menopause and who are not tainted by tubercular or malignant disease, one or a part of one or both ovaries can frequently be preserved, with or without the retention of the corresponding tube, in the following conditions:

(a) In follicular cystic degeneration or partially cirrhotic induration due to inflammatory processes or other circulatory disorders.

(b) In extirpating parovarian cysts, dermoid and fibroid tumors, with or without the uterus.

(c) With great caution, in the extirpation of non-papillary glandular cystomata that are devoid of surface papillomata and other evidences of malignancy.

2. *Necessary for success* in the resection of the uterine adnexa is the exercise of asepsis of the highest degree, and the use of a minimum amount of fine and readily absorbable suture material exclusively and judiciously, as to tension.

3. A generous median ventral incision provides the best access for this conservative treatment of the adnexa, in cases where septic accumulations in the parts are not certainly absent and when extreme fixations of the parts abound. When these more extreme complications are not present and a retroversion of the uterus exists, the resection of the adnexa is most auspiciously and

easily effected via the dilated internal inguinal rings in conjunction with a thorough Alexander operation.

4. Vaginal celiotomy does not provide a favorable access for conservative surgical treatment of ovaries and tubes. It does frequently admit of ignipuncture, but is not auspicious for *resection* of ovaries.

5. Resection, with the care and technique above mentioned, is the more ideal and most conservative measure, and should be preferred when the parts are sufficiently accessible without undue traction upon their lateral supports, and when asepsis in the surrounding wound and in the general execution is reasonably assured; otherwise thermo-cauterization is probably better.

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REPORT OF A CASE OF ACUTE PANCREATITIS AND FAT NECROSIS.¹

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(With illustration.)

CASES of fat necrosis and acute pancreatitis that have presented themselves for operation are still rare enough to demand careful study. It is with this object in view that I report the following case.

Acute pancreatitis and fat necrosis simulating acute cholecystitis; operation; death in ten weeks from exhaustion due to sepsis.

On April 5, 1901, I saw with Dr. R. B. Whitehead, of Elizabeth, N. J., Mrs. L. C. Through the kindness of Dr. Whitehead I was furnished with the following history: The patient, an American, of fairly good family history, 43 years old, had two children. The last pregnancy, eight years ago, terminated in a six-months miscarriage, the fetus being badly macerated. About 1895 she began to have dyspepsia, and at intervals of from three to six months severe attacks of colic accompanied by vomiting. She was usually relieved by hypodermatic injections of morphine of one-quarter of a grain. She was never jaundiced. The pain was always and only referred to the epigastrium. The present attack began suddenly on March 18, 1901, and was identical with her former attacks of colic. The pain was severe in the epigastrium. At first she vomited food, then large quantities of bile. The pain persisted and tympanites became troublesome and was increased by the morphine given. Patient was unusually constipated.

On April 1, 1901, a tumor was made out in the epigastrium and extended toward the left. This increased rapidly up to the date of the operation on April 7, *i.e.*, twenty days after the onset of the disease. Before the operation the urine was found

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to contain five per cent of albumin, granular casts, bile, and was of an acid reaction with a specific gravity of 1.028. It contained no sugar.

When the writer saw Mrs. C. on April 5, he found a well-nourished, medium-sized woman with a temperature of 100.5° and pulse 100. Since her illness began her pulse had varied from 76 to 108, while her recorded temperature was highest on the fourth day of her illness and not over 102°. She thinks that she lost thirty pounds; evidently the loss of flesh was considerable to give her the idea of so great a loss. Dr. Whitehead reports that during the second day of her illness her temperature rose to 103° and her pulse 120. From a study of the nurse's chart it is apparent that the patient was very restless, had taken anodynes at frequent intervals and strychnine for weakness. Probably on account of the morphia, much difficulty was experienced in moving her bowels. During those eighteen days she was more or less on a liquid diet. On March 30 a chill was recorded with an increasing temperature. At frequent intervals the patient complained of pain either in the epigastrium or in the right or left hypochondrium. The right hypochondrium appears to have been painful the most frequently. It seems that about April 3 these pains radiated in all directions and especially to the back.

Upon examination by myself a hard and sensitive mass was found to the right of the median line, extending six or seven centimetres in a downward direction. The mass was too hard and fixed for a distended gall bladder. While the patient's pulse and temperature were fairly good, the appearance of her face indicated a serious illness. With a previous history of gallstone colic it was thought likely that she was having a slow perforation of a gallstone and an inflammation of the surrounding tissue. An operation was advised. When on April 7 the patient was anesthetized, the tumor was found to be distinctly nodular and extended over the whole upper portion of the abdomen, reaching as low down as the navel. The possibility of a fat necrosis and pancreatitis was suggested by the writer because of the nodular feel of the tumor, and the acuteness of the illness would exclude a malignancy. He operated with the kind assistance of Drs. Victor Mravlag, R. B. Whitehead, and Charles L. Hill. An incision about three fingers' breadth to the right of the middle line brought to view a solid mass of tissue

which began at the lower border of the stomach and extended as far to either side and downward as the finger reached. The mass was fixed and covered with grayish-white nodules. Evidently a diseased omentum presented itself to the eye. Upon section the whitish-gray nodules contained brownish spots. The wound of the omentum bled freely. It was now evident that we had to deal with a case of pancreatitis, and a passage was looked for in the direction of the head of the pancreas. By blunt dissection the stomach was separated from the transverse colon. Very soon a cavity was broken into, from which a hundred or more cubic centimetres (estimated) of slightly thick-



Fat necrosis.

ened and turbulent serum flowed over the lower part of the wound. The opening through the thickened omentum was enlarged sufficiently to admit two fingers and a heavy rubber tubing doubled upon itself was inserted. This was surrounded with iodoform gauze. The gall bladder could not be found amongst all of the adhesions, nor was it especially looked for. The upper part of the wound was closed with several sutures. Some of the omental fat was excised and sent to Dr. F. R. Bailey for examination. He reported it to be fat necrosis. The accompanying drawing of a microscopic section shows the disease quite well. There was some reaction following the operation, as the patient's pulse rose to 124 on the next day and continued

between 108 and 126 for about one week. The highest temperature recorded was 101.2° forty-eight hours after the operation.

After the first week of the operation there was a varied rise and fall, the temperature going to 102° on April 19 and the pulse rose to 134. The pulse was irregular and rapid, while the patient vomited frequently. There seemed to be a marked improvement on April 22, when both pulse and temperature were below 100. Then there was again an irregular fever, rising as high as 102.2°. Later from May 1 to May 7 the temperature rarely rose above 100°; after that there frequently seemed to be a normal temperature and the patient sat up on May 17. She was thought to be convalescent and allowed to sit on the porch of the house. Soon, however, she returned to bed with an erysipelatous inflammation of the right foot, accompanied with a slight rise of temperature. On May 21 she complained of much pain under the left breast and in the right side of the abdomen and some nausea. During all this time the wound behaved fairly well. At times there was a copious discharge of serous fluid, which was shown chemically to be pancreatic secretion and had the property of changing starch into sugar. The writer saw the patient on the fifth day after the operation, when necrotic fat had formed about that part of the incision which was exposed to the influence of the pancreatic fluid as it escaped from the wound. The incision had gone through over one inch of subcutaneous fat and a layer of necrosed tissue formed in it. The patient's digestion was the cause of a great deal of anxiety. Dr. Whitehead found that the digestion of food was assisted by the use of Taka diastase. When the patient was allowed to get up it was thought that she was practically well. On May 22, as has already been mentioned, she had a rise of pulse to 120, which on May 23 rose to 150 with a temperature of 103.4°; the redness and swelling of the foot had subsided. There was much vomiting. On May 24, the wound having almost closed, I again saw the patient because of the fever and an increase in the size of the tumor. I suggested re-opening of the abdomen, which Dr. Whitehead did. Again some fluid was reached and a drainage tube inserted. Temperature, pain, and sweat continued, though in a less degree. At times she perspired profusely. On May 31 there was a large discharge of thick yellow fluid from the lower part of the wound, from which the writer fished out some white masses. These proved to be necrotic fat tissue surrounded by exudative inflammation.

Evidently the masses of necrotic fat were exfoliating. The discharge from the wound at times was immense. The writer saw a quart-bottleful that had discharged in twenty-four hours. This fluid showed typical pancreatic reaction. It looked as if it contained some bile.

On June 4 there was a sudden attack of pain, however, with a rise of temperature, and the discharge showed some bile and bowel contents. For a week the patient's condition looked more hopeful. Then she began to lose flesh and strength very rapidly and died on June 19, 1901. There had been a subnormal temperature for two days, then the temperature rose to 104° during the thirty-six hours before death.

Autopsy.—Dr. Whitehead reported the following: "Emaciation was extreme, liver normal, gall bladder full of pus and contained four large stones. Stomach normal (?). Stricture of the pylorus, the opening barely admitting the little finger. Of the pancreas only a small mass of gristly substance was left. Sinus of the first operation ran down to it. Sinus of the second operation opened into the gall bladder and into the duodenum about two inches from the pylorus (deceubitus due to the drainage tube?). The duets could not be made out nor any more caleuli found. The other organs were normal."

Of all the organs of the abdominal cavity, the pancreas is the one that has undergone surgical treatment less frequently than any other and about which the surgeon knows less than any other. With the exception of cysts, little was known until Balser in 1879, Fitz in 1889, Langerhans in 1891, and Koerte in 1896 wrote papers on fat necrosis due to acute pancreatitis; since then cases have come under surgical treatment with various results. Koerte reports four successful cases by P. Gouly, Walsh, Finney, Halsted, and Richardson. W. S. Thayer in the *American Journal of Medical Sciences* in 1895, and Dr. Lund in the *Medical and Surgical Report* of the Boston City Hospital for 1900, reported one successful operation each. Dr. George R. Fowler, of Brooklyn, N. Y., reports a case to the American Surgical Society in 1901 that got well.

These were all of the successful cases I have been able to come across following operative interference. Two cases are reported which reeovered after pieces of necrotic tissue had passed per rectum. Both cases are reported by Chiari.

Postmortem cases have been reported by many. Such has been reported by Scott, who also speaks of two cases seen by Dr. William Pepper. His case was the only one found in the Pennsylvania Hospital records for ten years, which speaks for the rare occurrence of this disease. In *Hildebrand's Jahresbericht* for 1899 but five cases are reported, which also shows how rare the disease is, or rather how rarely it is recognized. Stockton and Williams reported two fatal cases in the *American Journal of Medical Sciences*. Dr. Lund, in reporting Dr. Monroe's successful case after operation, reports five deaths. Two fatal cases are reported by Brennecke in the *Journal of the American Medical Association*. Among the foreign journals I find thirteen cases reported by Dr. Wagner, all of which terminated fatally.

As to the pathological anatomy the writer has learned more from a most excellent paper read by Dr. O. H. Schultze, Instructor in Gross Pathology at Cornell University, at the Practitioners' Club of Newark, N. J., than he could gain from any other source. It is hoped that Dr. Schultze will publish his paper, especially so as he possesses a large postmortem experience in this form of disease.

We have before us, then, an illness which at the present time results fatally in the vast majority of cases, whether operated on or not.

While the symptomatology of the disease under consideration seems simple, it is apt to be confounded with a number of other pathological conditions from which it is difficult to separate it. The majority of cases have been operated on under the belief that there was obstruction of the bowel. The symptoms have most frequently been described as occurring suddenly, with severe pain in the epigastrium, accompanied by great shock, rapid pulse, fever, and obstruction of the bowel. The acuter the case the greater the shock and the more rapid the pulse. Vomiting and very acute and complete paralysis of the bowel accompany most cases. It is due to those symptoms that so many cases have been operated on under the expectation of finding a strangulation of the gut. The patient's previous history invariably points to attacks of gallstone colic or frequent attacks of so-called gastralgia or acute indigestion.

The previous history of my own case was that of gallstone

troubles, and the autopsy showed four stones to be present. It is reported that the patient is usually well fed and frequently fat.

It is not my intention, however, to go into the history of these cases any further than to explain my own case; that has been done so well by Fitz, Koerte, and lately by Robson as to need no further rehearsal. It will be proper, however, to review my own case and to note such points in the causation of fat necrosis as may be of value to the practical surgeon.

The disease has properly been classified into the acute, subacute, and chronic forms. The very acute is commonly accompanied by hemorrhagic conditions and necrosis of the pancreas. My own case, while starting as an acute one, rapidly subsided into the subacute form. By referring to the temperature chart you will notice that the temperature was still quite high on the third day of the illness, but never anything very remarkable. Dr. Whitehead's verbal report was that the temperature reached 103° on the second day. It has been noted during the first five days that the number of respirations were out of all proportion to the height of the temperature and the number of pulse beats. The shock was not any more than she suffered with during her former attacks of "indigestion."

The case eventually rapidly subsided into a subacute condition. There was absolutely nothing in the case to draw one's attention to a disease of the pancreas at this time. Later, when the nodular tumor was found to be so extensive, a pancreatitis and fat necrosis suggested itself. Malignant disease was also thought of, but the acuteness of the case was against such a diagnosis.

A study of the temperature chart strongly indicated a septic condition.

When we consider such extreme cases as are often found at the autopsy (phlegmonous inflammation about the pancreas, the portal vein, and the spleen, with mortification of the retroperitoneal cellular tissue and pancreas, thrombus of the portal vein and general peritonitis—Strube), we feel our helplessness; but we must consider these conditions as the changes in the tissue at the termination of a fatal illness, and that at its earliest stage we may have just so curable a condition as is found in the early stage of appendicitis or strangulated hernia, except that large areas of cellular tissue are involved early in the disease.

The experimental studies of pancreatitis and fat necrosis are so interesting and instructive that a study of them will well repay one.

The opinion has been expressed by Langerhans that acute pancreatitis is caused by a closure of the pancreatic duct due to a gastro-intestinal catarrh. This is a very plausible explanation and well known to cause inflammatory conditions of the gall bladder. The experiment of closing the pancreatic duct by ligature, as conducted by Hildebrand, and thus producing a pancreatitis, would prove the above assertion. Ilava has also produced acute pancreatitis by ligature of the duct of Wirsung, especially after injecting bacteria into its lumen, but he was also able to produce the severe forms of hemorrhagic pancreatitis and fat necrosis by injecting gastric juice or hydrochloric acid in solution of two to six parts per thousand. While the former feels sure of the aseptic conditions of the experiment, the latter says nothing in this regard.

It has been asserted (Halsted) that a retro-injection of bile is a factor in the causation of the disease under consideration. It was also thought that an infection of the pancreas by colon bacilli (Strube), or some peculiar change in the pancreatic fluid, accounted for an acute pancreatitis and disseminated fat necrosis (Flexner). In many cases, however (Ponfick, Nauwerk), bacilli have not been demonstrated in the masses of the disseminated fat necrosis. We are all aware, of course, of the severe necrotic changes in the cellular tissue as produced by colon bacillus infection.

The most successful experimenter, no doubt, was Hildebrand, who, by aseptic ligation of the pancreatic duct, excision of parts of the pancreas, and transplantation of the pancreatic tissue from one animal to another, produced fat necrosis in twelve experiments.

There are some, however (Fränkel), who assert that pancreatitis is secondary to fat necrosis.

In actual practice we do not know what cases produce fat necrosis. It has been asserted by Fränkel that but ten per centum of all diseases of the pancreas present the symptoms of fat necrosis. Thus, a case of fat necrosis is reported (Swierzewski) where no changes in the pancreas were discovered. Such an assertion must, however, be taken with circumspection. Cases of severe hemorrhagic and gangrenous pancreatitis have been

known to be free from fat necrosis (Simon). It has been observed that aseptic rupture of the pancreas has not produced fat necrosis. These cases of rupture of the pancreas have been reported to form cysts (Harden) and no fat necrosis resulted. Again, rupture of the pancreas producing fat necrosis has been observed (M. B. Schmidt).

From all that has been learned the practical surgeon can glean little from bedside work. It seems most probable, however, that an injury to the pancreas or septic infection, or both, are necessary to produce the disease.

Concerning the surgical treatment we are still in the experimental stage. Greig Smith in the last edition of his work truly says: "Thus far systematic and deliberate surgical treatment has got little beyond cysts of the pancreas." From all the deaths following operation it is apparent that the proper treatment is still to be found. There are many elements to be considered, and not the least the immediate causation. The usual treatment has been to incise the tissue over the tumor, drain either through that incision or through the loin (Robson and others). It is apparent from all cases reported that at best convalescence by drainage is a slow one (Thayer three months, Monroe three months, Fowler several months). In a personal communication Dr. Fowler kindly writes: "The case of pancreatitis was a long time in recovering. A sinus persisted for several months, through which pancreatic secretion discharged. She finally made a complete recovery. The operation was a right lateral laparotomy and multiple tube drainage." Cases of pancreatic fistula have been known to remain open for from three to twenty-four months (Lilienthal, A. B. Johnson, Bull, Halsted, and Kelly), and secondary operations are likely (Thayer and my own).

As gallstone disease (Simpson, Opie, etc.) is so frequent in connection with pancreatitis, their removal will likely have some bearing as to the prevention of the disease.

If the whole organ has become gangrenous, drainage may do very well. If, however, only a part has been destroyed—and this seems to be the case in the specimen exhibited, as well as those seen by the writer through the kindness of Dr. Schultze—then nothing short of complete extirpation would apparently do. If this organ or any part of it (Hildebrand) secretes a vicious fluid which, under certain circumstances, will produce

death of the fat tissue surrounding the organ and thus possibly predispose to sepsis, then the entire organ should be removed. For we know very well, from glandular organs in other parts of the body, that their peculiar secretion will continue even when small parts remain.

We have long ago learned that patients do better in whom a complete operation has been done than one where diseased tissue was allowed to remain. We are told, however, by Boccardi that total removal of the pancreas produces glycosuria and many fatal changes in such important organs as the spinal cord, liver, glandular structure of the stomach, etc.

Experience only will tell us how to manage this very interesting disease. It will likely tell us that an early diagnosis and an early operation, contrary to all the experience of to-day, is most strongly indicated.

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SOME OBSERVATIONS ON THE SURGERY OF THE SPLEEN.¹

BY

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PRESENT-DAY knowledge of the physiology and pathology of the spleen is imperfect, and the surgery of that organ has not advanced proportionately with that of the other organs of the abdominal cavity. In view of these facts every case which may possibly contribute to our knowledge deserves to be studied and recorded. The following case forms the basis of this communication:

Mrs. S., aged 30 years, white, the mother of three children, applied to me March 5, 1901, for treatment. The family history is excellent, and the patient was ruddy, well nourished, and strong. Her health had been uniformly good. The menstrual function was normal; vaginal examination negative.

About one year ago she had observed an enlargement in the left side of the abdomen, which had steadily increased in size, and now presented as a tumor quite as large as a man's head. The tumor was evidently cystic, fluctuation being distinct, and was freely mobile. While standing the tumor gravitated into the pelvis and was below the umbilicus; lying down, and especially when upon the left side, it would glide toward the left hypochondrium and could be felt above the umbilicus. It could be readily carried by pressure of my hand all over the left and

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

middle regions of the abdomen. The diagnosis was ovarian tumor with long pedicle, or floating cystic kidney.

On March 8 I did an abdominal section and found the tumor to be the spleen in a state of advanced cystic degeneration. The cyst was unilocular and contained a straw-colored fluid; there were no signs of inflammatory changes in the adjacent peritoneum. After tapping, the tumor mass was readily drawn through a five-inch median incision. The pedicle was quite long and was composed of peritoneal folds enclosing the splenic vessels. This was readily secured with a double silk ligature and divided. The operation was very simple and bloodless, and was completed by closing the abdomen without drainage in a few minutes. Convalescence was easy and uninterrupted, and in a few weeks the patient resumed her household duties and continues in excellent health at the present time.

The following report of examination of the specimen was made by Dr. James Vance, the director of the Bacteriological Laboratory of the Hospital College of Medicine:

“Macroscopic Appearances.—The spleen presents as a conical-shaped sac, the base directed to the periphery and the apex toward the hilus. The altitude or long dimension of sac is 13 centimetres; the base, 8 centimetres. The sac contains a dark straw-colored fluid intermingled with abundant particles of broken-down tissue. The sac wall to the periphery—by far the greater portion of sac wall—is composed of the much-distended capsule of the spleen. The portion of sac cavity within the spleen proper, and forming the apex, has for a wall the ragged splenic pulp without lining membrane. Section through apex of the cavity and toward the hilus shows evidences of a thrombus of a branch of the splenic artery, thereby causing necrosis and subsequent liquefaction of area supplied by that artery.

“Microscopic Appearances.—Microscopic section shows the sac to be composed entirely of fibrous tissue with no endothelial lining. The sac fluid contains no bacteria nor echinococci, showing abundant débris of splenic pulp and lymphoid cells. Microtome section of the portion of the spleen not affected by cyst shows enormous thickening of the splenic capsule, trabeculae, and walls of blood vessels, which greatly diminishes the parenchyma. The individual lymphoid cell appears little affected.

“Bacteriology.—Culture tubes of agar-agar and blood serum inoculated with fluid from the cyst have proved negative, no

growth having taken place at either incubation (37° C.) or room temperature.''

It is not proposed in this paper to consider in detail the various pathological conditions to which the spleen is subject. In a recent communication to the Medical Society of the State of New York,¹ Dr. J. Collins Warren, of Boston, has formulated a table of these diseases numbering fifteen. It is rather my purpose to direct attention to the cystic spleen, to make it a factor in the differential diagnosis of abdominal cystic tumors, and to show that operation in such cases is not only feasible but quite practicable; also, to emphasize the fact that the spleen is not an organ essential for life and health.

On January 18, 1901, Ashby, of Baltimore, reported to the Clinical Society of Maryland a case of splenectomy for cystic spleen similar to the case reported above. This was a case wherein he supposed he was dealing with a uterine fibroid impacted in the pelvis. The woman had elevation of temperature at the time of the operation, which was supposed to be due to some lesion of the tumor itself. He did a section, removing the spleen, and the woman immediately proceeded with four weeks of typhoid fever; five other members of her family were down at the same time with typhoid. Tests were made and every possibility of mistake eliminated, so the case was undoubtedly one of typhoid fever. The operation did not seem to complicate her illness, and she made a good recovery. He reported the case several months after her convalescence was completed, when she had gained twenty pounds in weight and was in excellent health.

Dr. H. A. Royster, of Raleigh, N. C., has reported² a case of this same class with the same treatment and recovery. The tumor was diagnosticated as most probably a fibroeyst of the uterus with long pedicle. The operation was done in May last, and from a personal communication I learn that the patient is in excellent health at the present time.

Through a personal communication from Dr. George Ben: Johnston, of Richmond, Va., I am apprised of another case. The tumor was believed to be an ovarian cyst with elongated pedicle, but upon abdominal section was found to be a splenic cyst. The operation was simple, recovery prompt, and the patient's health is excellent after several years.

To the experienced abdominal surgeon there is nothing special

¹ See Transactions for 1901.

² Carolina Medical Journal, July, 1901.

in the technique of the operation of splenectomy for cystic disease. The median incision is preferable. It has been recommended by some operators, in removing enlarged spleens, to divide the gastro-splenic omentum between ligatures first, then turn the upper end of the organ out from the vault of the diaphragm before ligating the pedicle. In cystic disease it may be difficult to reach the gastro-splenic omentum, and it is preferable to draw the lower end of the spleen upward and secure the splenic vessels from that direction.

1912 SIXTH STREET.

INDICATIONS FOR THE COMBINED VAGINO-ABDOMINAL OPERATION FOR HYSTERECTOMY.¹

BY

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At the present time the indications for the combined vagino-abdominal operation for hysterectomy are few in number. In the opinion of the writer the advantages to be gained in some few selected cases that seek operative relief are so great in the combined operation that it is difficult to understand why it is not universally employed. The operation is not as difficult as an abdominal hysterectomy in the same case would be. It does not require any more time to perform it when the operator has accustomed himself to the various steps of the operation. The writer grants that there is greater mutilation—that is, it removes the entire cervix, while the ordinary operation for fibroid tumors leaves the vaginal portion of the cervix. Yet this is a small consideration compared with the great advantages to the patient in the cases in which it is advised.

I. In cancer of the body of the uterus, where that organ is enlarged to such a size that it would be difficult or impossible to remove it through the vagina without mutilation, there is a distinct advantage to the patient and to the operator to be gained by the combined method. The patient should be prepared in the ordinary way, and, after she is placed on the operating table in

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

the lithotomy position, the vagina should be scrubbed and sterilized. The neck of the uterus should be dilated and the cavity curetted until all the soft, easily broken-down cancerous tissue is removed. The cavity is then swabbed out with pure carbolic acid. This can be done in a very few minutes. The uterine cavity is packed full of gauze and the cervix closed with a continuous suture of silk. The vagina is again washed and sterilized. By using the ends of the silk for traction the cervix can easily be manipulated, the mucous membrane divided all around the cervix and pushed well back, and the bladder detached from the uterus up to the peritoneum. The vagina is then packed tightly with gauze and one end left protruding from the vulva. While the operator is sterilizing his hands his assistant places the patient in the ordinary position for an abdominal section. The operation can be completed much quicker by this method than a total extirpation could be without the vaginal work, for the reason that in doing the last part of the operation, ligating the uterine arteries and dissecting out the cervix, there is no hesitation on the part of the operator in finishing the work. As soon as an opening is made into the vagina the gauze is to be removed by an assistant pulling on that portion projecting from it. This leaves a comparatively clean vagina and the danger of infecting the patient from the vagina is minimized. And with the vaginal mucous membrane well pushed back the operator can finish the operation from above in a very few minutes. The cancerous uterus has not been mutilated in any way and there is no danger of infection from that source. The possibility of implanting cancerous cells in the wound, as has been suggested by Cheyne, is wholly avoided. This part of the technique practically excludes the probability of infecting the patient from her cancerous uterus, as could easily be done if the uterus were not curetted and thus treated. The whole procedure thus far has not occupied more than five to seven minutes' time. As soon as the abdomen is opened the patient is put in the Trendelenburg position and the operation is finished in the ordinary way.

The manipulation necessary for the removal of the uterus always extrudes some infectious material from the cervix, if the uterus has not been packed with gauze and closed with suture. By the combined method this danger is avoided. Before closing the pelvic peritoneum a strip of gauze should be carried out through the vagina and lightly packed over the raw surfaces in the pelvis. The pelvic peritoneum is then closed with a continu-

ous suture of fine catgut and the abdominal incision closed in the usual manner. This gives us thorough drainage and a closed peritoneal cavity.

II. The writer would urge the great advantage to the patient of the combined method in fibroid tumors of the uterus with a history of repeated attacks of peritonitis where the tumor is fixed by pelvic adhesions and complicated by a suppurating ovary. The patient should be placed in the lithotomy position and the vagina scrubbed and sterilized, and, if the cervix is accessible, the uterine cavity should be curetted and swabbed out with pure carbolic acid. The vaginal mucous membrane should be detached entirely around the cervix and well pushed back. If a suppurating ovary is present and the tumor is in such a position that this is accessible from the vagina, it should be opened freely and the cavity well washed out. The bladder should be dissected back as far as possible without opening the peritoneal cavity. The main object to be sought is to have a clean vagina for the subsequent operation and to empty the pus cavity from the vagina before opening the peritoneal cavity. The vagina should now be packed with a long strip of gauze to catch any infectious matter extruded from the uterus during the subsequent steps of the operation, and one end of the gauze left protruding from the vulva. While the operator is sterilizing his hands the assistant can place the patient in the usual position for an abdominal section. If there is no contraindication the patient should be placed in the Trendelenburg position and the operation completed through the abdomen. In these cases the whole pelvic cavity is left raw. If, after the uterus and suppurating ovaries are removed, there is enough peritoneum to be approximated, a long strip of gauze should be carried out through the vagina and the pelvic cavity and all the raw surfaces covered over with gauze. The peritoneum is then closed above the gauze, leaving a narrow space to admit one end of the gauze, which extends a few inches into the abdominal cavity. No other drainage is used. It not infrequently occurs, after these operations with a large suppurating ovary, that so much injury has been inflicted to the pelvic peritoneum that it cannot be brought together so as to close the peritoneal cavity perfectly. In these cases one can safely rely upon gauze packing, leaving it in until the fourth or fifth day. The writer is convinced that many of these very desperate cases suffering from chronic sepsis can be saved by this method. Every portion of necrotic tissue

as well as raw tissue can be covered over with gauze and prevented from coming in contact with the healthy peritoneum and coils of intestine. The free drainage which this method permits greatly favors convalescence. As in cancer of the uterus, the combined method makes the removal of the cervix from the abdomen very much easier than it would otherwise be, and the procedure really shortens the time of the operation over total extirpation without the vaginal work. By this method we have a practically sterile vagina when it is opened during the abdominal operation, which is not true in total extirpation by the abdominal route alone.

III. Women with gonorrheal infection frequently have repeated attacks of pelvic inflammation, suffering for years before they come to the operator for the removal of suppurating ovaries. By this time the adherent mass of inflamed tissue fills the pelvic cavity and protrudes into the abdomen. There is no chance of saving either ovary and no reason for leaving any part of an infected uterus. The asepsis possible only in the combined operation has enabled the writer to get recoveries in many of these desperate cases where ordinary methods would have resulted disastrously.

The combined method has the following distinct advantages:

1. It prevents infection, by the technique of the operation and the use of gauze to protect the healthy coils of intestine from infected areas.

2. There is less danger of injury to the bladder and ureters.

3. The drainage is perfect, with no complications like hernia or fistula following it.

4. The improvement in the method employed enables us to operate successfully on desperate cases where death would follow were the vaginal or the abdominal operation alone employed

GALLSTONE IN THE COMMON DUCT:
REMARKS UPON THE FREQUENCY, SYMPTOMS, DIAGNOSIS, AND
TREATMENT.¹

BY

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THE importance of the subject is apparent, inasmuch as in this country, according to Mosher,² gallstones are present in 6.94 per cent of all people—in other words, about one person in every fifteen has gallstones; and, furthermore, that of those so afflicted, death was attributed to the presence of gallstones in 11+ per cent of cases—that is to say, in every 1,000 deaths, 76 are attributed to gallstones. In round numbers, 13 per cent of all cases of gallstones show chronic obstruction of the choledochus by calculi.

Conradi, as quoted by Courvoisier, found gallstone in the common duct in about 15 per cent of all cases. The writer, who has performed thirty-two operations for gallstones, has encountered four cases in which there were one or more stones in the common duct. In one case there was a single stone and that in the choledochus; in two cases one stone in the choledochus, and many in the gall bladder; and in one case the stones were found in the gall bladder, common and hepatic ducts.

Mosher's tables, compiled from the Johns Hopkins Hospital records, are very instructive. The one relating to the frequency of gallstone in the common duct shows that in 115 cases in which gallstones were found at autopsies 86 showed the stones in the gall bladder alone and only one in which the stone was in the common duct alone. There were, however, in all, 15 cases of stone in the common duct, and in all but one case its presence here was associated with stone in other portions of the biliary passages. These statistics do not fully show forth the great frequency of stone in this location. They bring to our view only

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

² Johns Hopkins Hospital Bulletin, August, 1901, pp. 253-259.

the cases in which the stone has become lodged in the common duct, and do not present the much larger number of cases of acute jaundice with passage of stone along the common duct.

In order to better interpret the symptoms of stone in the common duct, it is well to observe the commonly accepted classification, viz.:

1. The acute form of obstruction due to passage of stone.
2. The chronic form of obstruction of the common duct due to impaction of the stone or to a stone retained in the duct, yet movable in a dilated portion.

In the latter case the stone may act as a ball valve, preventing at times the flow of the bile into the intestines. In the first division we have the regular form of biliary colic of Naunyn. In it there is the sudden onset of pain, agonizing in character, more or less intermittent, and lasting from one or two hours to as many days. The pain is located in the gall-bladder region or epigastrium. It radiates, is oftentimes severe in the back, under the right shoulder blade, and sometimes extends as high as the shoulder.

Not infrequently it terminates suddenly, or it may abate for a time and recur with increasing intensity, until finally it entirely, suddenly or by gradual degrees, disappears. At the onset frequently the patient vomits. In all cases where several hours are required for the passage of the stone, jaundice is present with varying degrees of intensity. An examination of the stool during the next few days usually discovers a gallstone.

This is the old classical form of bilious colic. We have all met with many cases of this sort. In it acute pain and icterus are the characteristic features. If the stone is successfully passed the patient gradually regains his accustomed health, suffering, however, for a few days from loss of appetite and much tenderness on pressure and motion in the right hypochondriac region.

In the chronic form the stone in the journey from the gall bladder to the duodenum is arrested somewhere in the common duct, most frequently at the duodenal end of the duct, next most frequently at the first portion of the common duct, and the least frequently in the central portion. The stone may be impacted and immovable (as it was in one of the writer's cases), slightly movable or freely movable in a dilated portion of the duct or ducts. When impacted and immovable there is complete

obstruction to the flow of bile through the choledochus, and deep, persistent icterus.

If the stone be even slightly movable, there is usually at times a passage of bile along the duct, past the stone, into the duodenum. In such a case the icterus varies in intensity, so that the difference in color of the skin and sclerotic upon different days is apparent to the patient and physician. There is also a variation in color of the stool and urine. In a recent case of mine (No. 4) the jaundice deepened always after a period of pain in the hypochondrium. The patient would suffer from a deep, quite severe and persistent pain for a few hours. Near the end of the pain and for a few days afterward the icterus would be more intense and then gradually lessen, the stool becoming slightly colored by bile and the amount of bile in the urine diminishing.

This variation in the color of the skin is a diagnostic symptom of great importance, for when present it points strongly to a retained choledochus stone, but one in a dilated portion of the duct. The relation between these two conditions has been made very clear by the investigations of Fenger.¹ A deep jaundice, persistent and long continued, means permanent obstruction of the choledochus, such as is produced by an impacted, immovable large stone in the duct or the pressure of a tumor in the region of the gall bladder or ducts.

In case of obstruction due to a tumor the gall bladder is usually distended, while in case of obstruction of the common duct by stone the gall bladder is contracted and cannot be palpated in about 90 per cent of cases.

It must be remembered in this connection that a large stone impacted in the cystic duct may, in certain positions of the gall bladder, especially where there are adhesions between the pylorus and gall bladder, or the gall bladder also packed with stones, cause pressure, obstruction of the common duct, and this likewise may be intermittent in character. This is, however, a very rare occurrence.

There are not wanting cases of a stone, even a large one, in the common duct in which there is no jaundice. This is because the stone is imprisoned in a dilated portion of the duct and floats about without completely obstructing the duct. Here the colicky pains are usually present and tenderness and not infrequently intermittent fever.

¹ Journal American Medical Sciences, 1896, pp. 125-207.

The fever attending the chronic choledochus obstruction is quite characteristic. It is intermittent, very much resembling in its course a malarial fever. In a gallstone case a continuous fever with profound systemic involvement argues the presence of septic cholangitis or abscess of the liver.

Treatment.—It is now quite generally agreed that cases of acute obstruction of the choledochus with jaundice are amenable to medical treatment. The Carlsbad cure, either at the springs or at home, is oftentimes quite efficient. In our own country a sojourn and course of treatment at the French Lick or West Baden Springs not infrequently affords relief. Another line of treatment usually of benefit is morphine for the relief of pain, hot fomentations to the hypochondrium, and liberal doses of oil until the bowels act copiously.

These methods of treatment are not always curative, even when they for a time relieve the symptoms, but that they often have a favorable influence upon the course of the disease there can be no doubt. Chronic obstruction of the choledochus by stone is a surgical disease. In the light of postmortem findings there can be no doubt that there are occasional instances in which the calculus may lie in the choledochus in a quiescent state while the bearer may be unconscious of its presence. This is highly exceptional. The rule is that the patient is a confirmed invalid and that his invalidism becomes more and more pronounced as the time passes along. Sooner or later he must come to the operating table if he will regain his health. This is a pertinent question: How long shall one suffering of lithogenous choledochus obstruction wait before submitting to operative interference?

Kehr, whose vast experience renders his opinion of great weight, thinks that three months is quite long enough to wait. His record of cases shows great danger in longer delay. The cases seldom come under the observation of the surgeon until a much longer time than this has elapsed, so that he is ready to proceed as soon as the diagnosis is confirmed and the patient prepared for the work. In one of my cases (No. 4), associated with cholecystitis and pericholecystitis, the patient was operated upon at the end of six weeks, and it is my belief that a longer delay would have added to the dangers of the active procedure, so that I do not believe we can lay down any fixed rule as to the time of operation.

Some of the milder cases recorded have gone on for years

without producing alarming symptoms, while others have had develop alarming symptoms very early in the course of the disease, so that delay would have been disastrous. Certainly, if there have been clear evidences of common-duct obstruction for a period of three months, there is little or no hope of relief outside of surgical means. Longer delay is useless, while, on the other hand, the symptoms may be so urgent as to demand immediate procedure.

The mortality attending the choledochus operation, when the obstruction is not associated with cholangitis, empyema of the gall bladder, intestinal fistula, or cancer, is about 15 per cent. It is not my purpose to describe in detail the technique of the different methods of operation, only to consider briefly a few points. The incision which seems to meet with the most favor is the vertical one along the right border of the rectus muscle. The incision should be ample and may be supplemented by a transverse cut anywhere along the upper border of the original one.

The guide to the position of the gall bladder is the notch or fissure between the right and quadrate lobes of the liver. It is very common to find the gall bladder concealed, indeed buried, by adhesions to it and the under surface of the liver, of the colon, duodenum, pylorus, or omentum. The adhesions binding these organs together must be separated before the gall bladder can be uncovered and brought into view. The gall bladder, hepatico-duodenal ligament, and duodenum serve as landmarks in determining the course of the common duct. The common duct, as a rule, runs along the posterior surface and upper border of the hepatico-duodenal ligament.

With the finger in the foramen of Winslow and the thumb opposite upon the anterior surface of the hepatico-duodenal ligament, the operator may begin at the cystic duct and palpate the common duct from right to left throughout its whole course to the entrance of the duct into the duodenum. It would seem that the presence of a stone ought to be easily determined, but, as a matter of fact, small stones are often overlooked. When the adhesions have been separated, as a rule the operator can, with his finger in the foramen of Winslow, lift up and pull forward the common duct so as to render it accessible.

Fenger's chart showing the anatomical relations of the portal vein and hepatic arteries to the common duct is accurate and very helpful, enabling one to remember the most favorable line

of incision. The lower half of the anterior portion of the first part of the common duct is partially covered by the main trunk of the portal vein. The vein lies behind the middle portion of the common duct.

The upper and anterior part of the middle portion of the common duct is the most favorable one for incision and removal of the stone. As a majority of the stones are located in the duodenal end of the duct, and this is of difficult access if the stone be impacted and immovable, recourse may be had to duodeno-choledochotomy, first performed by McBurney. McBurney¹ reports six operations with one death, a mortality of $16\frac{2}{3}$ per cent; Mayo Robson² reports seven cases showing two deaths, a mortality of 28.57 per cent. It will thus be seen that in this procedure the mortality is considerably greater than that in choledochotomy, which, according to Kehr,³ is about 10 per cent; so that while McBurney has introduced a method that at times will be of great service, when it is possible the stone should be pushed back into the middle portion of the duct and extirpated through an incision in its walls. Fortunately the stone is usually movable, so that this manipulation is possible. I cannot find, in the large number of cases reported by Kehr, that he ever found it necessary to do a duodeno-choledochotomy.

There are dangers in incising the common duct in its first portion, on account of the location of the portal vein. Kehr reports several cases in which he incised the cystic duct and carried the incision onward to the common duct. Certainly the incision should be along the superior portion of the common duct in this location. In two of my cases, during the operation the cystic duct was dilated, once by a slender forceps and only to a slight extent, while in the other it was dilated by gently forcing the little finger into it and then the ring finger into it and through it. No harm, only good, resulted in both cases, as in one case we obtained a free flow of bile, and in the other we were able to squeeze through the dilated duct a gallstone of considerable size.

In suturing the incision in the common duct, if it is much dilated, placing the sutures as suggested by Elliott, before the stone is removed, will be found advisable. As a rule only the soft stones should be crushed. Needling is probably quite as

¹ *Annals of Surgery*, October 18, 1893.

² Mayo Robson: *Diseases of the Gall Bladder*, p. 269.

³ Kehr: *Gallstone Disease*, p. 135.

dangerous as incising the duct and extracting the stone, and is much less satisfactory.

The lumbar stab of Morris has been much written about of late and has been employed frequently, especially by English surgeons. It would seem to have a limited field of application, inasmuch as gauze packing, with or without the rubber drainage tube, has been found very efficient.

The writer believes that all cases of choledochotomy should be drained, and that, unless it can be demonstrated, by the passage of the sound into the duodenum or the injection of fluids along the common duct into the same organ, that the common duct is freely patulous, the gall bladder should also be drained in all cases in which the cystic duct is pervious.

Cholecystenterostomy has a limited place in choledochus obstruction. In many cases the gall bladder is contracted and the cystic duct impervious. In both cases anastomosis of the gall bladder with the bowels is contraindicated.

Mayo Robson's Case 303, page 309, shows what may follow in any case of joining the gall bladder to colon or duodenum, leaving an obstructing stone in the choledochus; also Kehr's case reported on page 264 of the work already quoted. In both cases the fistula occurred as the result of morbid processes. Both patients were invalids, and both patients of necessity came for operative relief. The operation of cholecystenterostomy is easily and quickly done if the gall bladder be distended, and may serve as a temporary expedient in case the patient is not able to bear the larger operation of removal of the obstructing stone. I am persuaded that Kehr's method of draining the hepatics with a rubber tube will be proved of value in cases in which bile containing infective material is poured out on incising the duct, and this method will probably do away with the method of the lumbar stab.

The recent advances made in the surgery of the bile ducts is most gratifying. Only a few years ago our only surgical resources for chronic choledochus obstruction were cholecystotomy and crushing or needling the stone. Now in addition to these are added incision of the choledochus and extraction of the stone, duodeno-choledochotomy, cholecystenterostomy, cholecystotomy with injection of solvents.

The writer's limited experience with these cases convinces him that one should not essay to engage in surgery of the biliary ducts without a mastery of the technique of these various

methods. He should also possess such knowledge and judgment as will enable him to determine quickly, as the case presents itself, the best method to employ in a given case.

CASE I.—*Single soft stone in the common duct; gall bladder of normal size, containing fluid but no stone, not opened; the stone in the common duct crushed; many adhesions, in the separation of which an opening torn in the portal vein; profuse hemorrhage; attempted suture of the vein a failure; the hemorrhage stopped by ligating a portion of the walls of the vein around the opening; recovery of the patient.*

The patient was brought to me by Dr. Hollingsworth, of Princeton, April 22, 1899. He was a man of about 40 years of age, who gave the following history: For many years he had been the subject of occasional attacks of hepatic colic, the attacks varying in duration and frequency. In some attacks he was moderately jaundiced and in some not at all. The present attack began three months previous to my seeing him. It was ushered in by severe pain. Jaundice appeared in a few days and has continued to a greater or less degree till the present time. The patient is now deeply jaundiced, but states that this feature of his case varies from day to day. The stools were acholic, and urine deeply colored by bile pigments. There is a continued low grade of fever, loss of appetite, and marked emaciation. There had been no severe attacks of pain for several weeks. There was, however, marked soreness in the region of the gall bladder.

Examination revealed no tumor in that region. He was operated upon April 23, 1899, at St. Vincent's Hospital, in the presence of Dr. Ferguson, Dr. Hollingsworth, and Dr. Hester, Dr. Ferguson assisting and Dr. Hester administering the anæsthetic.

A vertical four-inch incision was made through the abdominal wall, beginning at the tip of the tenth rib. Many adhesions were encountered, so that it was difficult to uncover and expose the gall bladder. It was small, containing a little fluid but no stone. Finally, after prolonged search, a stone was found in the common duct near the duodenum.

A considerable effort was required, in separating adhesions, to bring the stone into a position in which it was possible for me to determine its location and character. Finally it was demonstrated that the calculus was not fixed, but had a small range of motion, and that it was for the most part soft. With a gentle

yet firm pressure with the thumbs and fingers it was crushed into small fragments; in fact, after a few minutes' work in crushing, the calculus seemed to entirely disappear, all except two small, irregular fragments which were by gentle pressure forced into the duodenum.

Some time during this effort we were surprised by the sudden appearance of profuse venous hemorrhage. I persisted in my efforts until I had, as I thought, effectually disposed of the fragments of stone. Now, turning my attention to the hemorrhage, I found it profuse and altogether venous. It was checked by finger pressure until the effused blood was cleared away, when it was apparent that we had wounded the portal vein.

On removing the finger from the rent the blood would rapidly well up from a small irregular opening. By widely retracting the wound and holding the right lobe of the liver well up, the vein could be distinctly seen. With a very fine curved needle I attempted to close the rent with sutures, but failed on account of the inaccessibility of the vein and because of the stitches tearing out.

By experimenting I discovered that with the thumb and index finger I could pick up the vein in such a manner as to close the opening and yet retain a considerable portion of the lumen of the vein. While holding the vein in this manner, my assistant, Dr. Ferguson, secured a catgut (No. 2) ligature around a portion of the vein just beneath the grasp of thumb and finger. This ligature held securely and entirely checked the bleeding. The blood was carefully mopped out of the exposed portion of the abdominal cavity, some iodoform gauze placed over the vein with the ends hanging out of the incision, and the liver let down into normal position. The sponges used in packing off the field of operation were removed and the upper angle of the incision closed.

I watched the patient with the greatest solicitude for several days. On the third day the dressings were found saturated with bile. Whether this bile was poured out from the common duct through an opening resulting from a slough due to the injury in crushing the stone, or through an opening in the gall bladder resulting from an injury to the gall bladder inflicted by a needle during the operation, I am unable to say, but I believe the latter was the case.

The bile continued to discharge from the wound three weeks, when it ceased and the wound closed. The gauze packing left

over the injured vein was removed at the end of the fifth day and there was no hemorrhage. The patient went on to a perfect recovery, the jaundice gradually disappearing. The patient left the hospital in five weeks, and in a few weeks took up his work again and has remained to this time in excellent health.

CASE II.—Mrs. G. was referred to me by Dr. Holland, of Bloomington, Indiana. The patient was about 64 years of age. She gave the history of several attacks of hepatic colic in former years; these were attended by slight jaundice. The present attack began about five weeks previous to my seeing her. I saw her at St. Vincent's Hospital October 6, 1900. She was intensely jaundiced and was an extremely sick woman. There was not much elevation of temperature, but great prostration. There were numerous purpuric spots upon the surface of the body. The tongue was dry and furred, the countenance dejected, and intellect clouded. Altogether I regarded the case as unfavorable, but felt impelled to endeavor to relieve the biliary obstruction.

She was operated upon October 7 at St. Vincent's Hospital. The gall bladder was small and packed with stones. Two medium-sized stones were found in the common duct near the junction of the cystic and hepatic ducts. These stones were impacted and immovable and lay just behind the portal vein. The adhesions were so firm it was impossible to draw the duct into an accessible point. A faithful effort was made to crush the stones, without success. A probe could be passed through the cystic duct backward and upward into the hepatic ducts, but not into the common duct as far as the stones. A small amount of bile came into the gall bladder on removing the probe. The cystic duct was gently dilated with a slender forceps and an anastomosis made with a small Murphy's button between the gall bladder and small intestines. The patient bore the operation well, but in a few hours passed into a stupor from which she never rallied, dying at the end of thirty-six hours, probably of cholemia, the operation, however, hastening her death. No post-mortem was obtained.

CASE III.—*Stones in the gall bladder and one large stone in the cystic duct; choledochotomy; recovery.*

Mrs. M., aged 61 years, had been in fair health until the commencement of the present attack, December 19, 1900. Then she was seized with pain in the epigastrium, vomiting, and a slight rise in temperature. There was soreness in epigastric and right hypochondriac regions. Slight jaundice appeared the first day

of attack, and gradually deepened, with slight remissions, until date of operation, January 25, 1901.

There had been a history of intermittent attacks, extending over two or three years, of seizures of pain in epigastrium, but no typical attacks of biliary colic and no appreciable jaundice. During the present attack there had been marked loss of flesh, so that the weight had diminished twenty or twenty-five pounds.

Examination of the patient revealed marked jaundice and distinct evidences of emaciation, though the patient was still stout. She complained of soreness in hypochondrium, increased on change of position and upon walking. There was no tumor in the gall-bladder region and no fever. The stools were acholic and the urine contained much bile. There was troublesome itching, but no eruption upon the skin, and no evidence of hemorrhage from any of the mucous membranes or beneath the cuticle. The patient was weak and somewhat despondent. The diagnosis of obstruction of the common duct was based upon the above history, the chief points determining the diagnosis being the history of having passed two or three stones upon former occasions, the remittance of the jaundice, the rapid loss of flesh, and the absence of a tumor.

The operation was done by me at the patient's home near Arlington, Indiana, with the assistance of Dr. Barnum and Dr. Smith and a trained nurse, January 25, 1901. A four-inch incision was made in the right semilunaris from the costal arch downward toward the umbilicus. The opening thus produced was finally supplemented by a transverse incision two inches long, beginning at the upper end of the incision. There were quite numerous but recent adhesions between the liver, colon, and gall bladder. The adhesions were easily broken up, so that the gall bladder under the surface of liver, the hepatico-duodenal ligament, and the duodenum were brought into view.

The bladder was greatly atrophied and could be felt to contain a mass of stones in the free lower portion. The finger carried along the course of the common duct readily detected a large stone in that duct. It seemed fixed in the duodenal extremity of the duct, but it was found, by applying a little pressure, it could be moved upward toward the hilus of the liver. There seemed to be a dilatation of the common and hepatic ducts in which the stone floated freely, but it invariably returned to the duodenal end of the common duct as soon as manipulation of it ceased.

The finger readily entered the foramen of Winslow and passed

beneath and beyond the stone, so that the hepatico-duodenal ligament with the choledochus and portal vein and hepatic artery could be pulled forward and downward into full view.

The gall bladder was first incised and the stones removed. They seemed contained in a well-defined cavity. They proved to be numerous small ones closely crowded together. They were scooped out and we counted forty-nine of them. There were others lost and uncounted, but most of them were quite small, being but little larger than a grain of wheat, but all were distinctly faceted. Not a drop of bile was seen in the gall bladder, and we were unable to pass a probe into the cystic duct. The whole lumen of the gall bladder seemed obliterated, except a small pocket at the distal extremity which contained numerous small stones.

Our attention was now turned to the stone in the cystic duct. The finger was carried into the foramen of Winslow behind and beyond the stone. It was pulled downward and forward into view. The portal vein could be seen to the right of the stone and the hepatic artery felt above and behind the stone. An incision was made through the hepatico-duodenal ligament and duct over the anterior surface of the stone. Two rows of stitches were placed so as to effectually close the incision after the stone was removed. As placed, the ends of each suture were caught with a catch forceps and laid aside. The next suture was treated in the same manner.

Five sutures were required in the first row, in which we endeavored to include only the peritoneal and muscular layers of the duct. In the second row there were three sutures, including the ligament and outer coat of the choledochus. The sutures were properly separated and the stone gently pried out. There was now a gush of bile the amount of which astonished me. Fortunately we had effectually shut off the general peritoneal cavity and covered the surrounding viscera with gauze pads. After mopping out the bile the common duct was explored by passing the index finger into the incision in the duct and along the dilated portion of the duct upward to the hilus of the liver and a short way downward to the duodenum. No other stone could be detected. The sutures were tied and we had a dry field. The pads were removed and the toilet of the peritoneum made. Several strips of iodoform gauze were placed over the gall bladder and packed around above and below the incision in the common duct. A rubber drainage tube wrapped around

with gauze was carried down and placed near the incision of the duct. The wound was now closed by through-and-through silkworm stitches, except a part of the upper portion, through which portion the ends of the gauze and tube extended.

The time required for the operation was one hour and ten minutes. The patient rallied well. She was rational at the end of an hour and did not complain of excessive pain. She did very well after the operation. The second day she vomited a little. Dr. Barnum reported to me that he had found upon his visit the dressings saturated with bile. The patient had a normal temperature and good pulse. The bowels moved the second day by enema and again the third day when the stool was found stained with bile. From this time on the recovery of the patient was progressive and satisfactory. The gauze and tube were removed the fourth day and the wound lightly packed with gauze. The discharge of bile gradually diminished and finally disappeared as the wound closed, which was accomplished at the end of the twentieth day. Three months later Dr. Barnum reported the patient as having entirely recovered and enjoying excellent health.

CASE IV.—*Gallstones in the gall bladder, common and hepatic ducts; gall bladder distended, cystic duct dilated, and dilatation of first third of common duct and the hepatic duct to size of a small intestine; the stones (two small and one large) in dilated portion of common and hepatic ducts; enlarged gland in hepatico-duodenal ligament as large as a hickory-nut; cholecystotomy, further dilatation of cystic duct, and delivery of stones from common duct.*

Mrs. B., aged 53, was seen by me June 8, 1901, with Dr. Theodore Wagner. The following is the history of her case: Mother died at 38 of some pulmonary disease. Father died at 82 years. He was all his life a well and strong man. He died of typhoid fever. The patient is the mother of five children and has always enjoyed good health, except that at intervals for the last four or five years she has had severe attacks of epigastric pains. Pains were at first very severe, but lasted only a brief time, one-half to one hour. The pain was located in the stomach and liver regions.

Two years ago she had a severe attack of pain and soreness in the liver region. Gallstone was not suspected. Never jaundiced until present attack, which began five weeks previous to my call. The attack began with pain in right hypochondrium and epi-

gastrium. Itching of skin began in a few days, and a few days later jaundice appeared. The jaundice gradually deepened, but varied in intensity from time to time. Urine dark-colored and stools acholic. The patient suffered intermittent pains, but had no fever.

Upon my examination the patient was found deeply jaundiced and complained of irregular attacks of pain in right hypochondrium and in the back and under the shoulder blades. She was around the house, but feeble. We estimated that she had lost thirty pounds during the five weeks' sickness. Physical examination revealed a small tumor in the gall-bladder region. Our diagnosis was gallstone in the gall bladder and in the common duct. The case was too acute for a malignant disease, and the intensity of the jaundice was intermittent.

She went to the hospital June 10, 1901, and was operated upon June 11, 1901, at the Deaconess' Hospital.

Operation.—A vertical incision at the border of the right rectus muscle was employed. On entering the abdominal cavity the distended gall bladder came immediately into view. It contained bile and stones. The ducts were palpated. A largely dilated portion of the first portion of the choledochus, hepatic duct, and of the cystic duct was apparent. The dilated portion of the common and hepatic ducts was as large in circumference as two fingers and about two inches long. Stones could be felt in the dilated portion. The gall bladder was aspirated and then opened at its upper portion and a large number of stones pressed out. These stones varied in size from that of a small pea to those as large as a hazel-nut. When the gall bladder was emptied a finger was thrust through the incision into it and down to the cystic duct. The latter was found dilated. A small finger was carried through it into the common duct. This was withdrawn and the ring finger carried with a little urging through it.

It was now found possible to press the three stones found in the dilated portion of the common and hepatic ducts into the gall bladder. One of the stones was quite as large as the end of my ring finger. It was faceted and smooth. This stone, before it was forced into the gall bladder, could be made by a little pressure to disappear under the liver, but in a little time it would float down again. Search was made in the common and hepatic ducts for more stones, but none were found. A sound or probe could not be passed downward beyond the dilatation in the common duct toward the duodenum. Search was made

for a stone in this portion of the duct, but none was found. A mass about as large as a hickory-nut was found near the insertion of the duct into the duodenum. It felt like a soft stone and was tested with a needle puncture and found to be soft tissue. We decided it was an inflamed gland and let it alone. The gall bladder was stitched to the peritoneum and fascia and the remainder of the incision closed. A soft-rubber drainage tube was carried into the gall bladder and through the cystic duct into the hepatic duct.

The patient recovered easily from the operation, the only unfavorable symptom being bleeding from the gums, which began the fourth day. It was not profuse, but continued more or less for several days. Great quantities of bile were discharged through the tube for weeks, when gradually it grew less and the urine cleared up, while the stool became stained brown. The patient was slightly jaundiced for nine weeks. She now (September 11) has been free from jaundice four weeks and is rapidly increasing in health and strength.

At one time, eight weeks after the operation, when as yet no bile had passed in the normal way, we contemplated joining the gall bladder to the duodenum by a Murphy button. Fortunately a week's delay obviated this necessity.

She remained in the hospital six weeks. Nine weeks after the operation, first noticed a distinct coloring of the stool by bile. She is now, thirteen weeks after the operation, free from jaundice. The fistula is very nearly healed and the urine and stools normal. She is rapidly gaining strength and weight and is doing a little light work.

224 NORTH MERIDIAN STREET.

SOME FORMS OF DISEASE INVOLVING THE UTERINE APPENDAGES.¹

BY

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IN considering any of the various forms of disease that invade the pelvic structures, it not infrequently becomes necessary to

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determine to what extent the uterine appendages may have become involved by the presence of such a morbid process. Experience leads to the fact that the large proportion of diseases affecting the uterine adnexa results from extension of morbid conditions from neighboring centres. So firmly has this point become established that now no competent surgeon institutes measures for entering upon an operation for the removal of the appendages until he has carefully studied all the special phases of the tissues of the surrounding parts. Inflammation of the endometrium, either of a catarrhal or of a gonorrheal form, may extend its septic action upward to the lining membrane of the Fallopian tubes and thus give rise to salpingitis or ovaritis. The latter as well as the original trouble can often be cured when resort to active treatment has been timely made. Such relief can be effected by dilatation and curettement of the uterine cavity, carried up as far as about the openings into the tubes, and by the employment of local applications to the parts affected. I have met with cases of salpingitis in which the inflammation had evidently been conveyed from the uterus along the course of the lymphatics of the broad ligaments. In such cases the lymph channels were often visibly affected, being thickened and becoming painful or tender. Continued local treatment, even in the chronic forms of disease, often proves of service. Applications of ichthyol-glycerin, repeated use of hot douches, soothing suppositories, counter-irritants persevered with, are often productive of excellent results. Diseases of the pelvic peritoneum have not infrequently been the centres from which the Fallopian tube has become affected. Tubercular infiltration of this membrane, originating from the intestine or from its glandular tissue, may be a determining cause. Cases of this character have come to my observation. In those cases in which celiotomy and a mere removal of a tube or a partial excision of an ovary have been resorted to, recovery has occasionally been practically complete. Oöphoritis or ovaritis generally has its connection with the puerperal state; circumscribed hyperemia or hematoma may take place in the ovary from sudden suppression of the menstrual discharge. General constitutional disturbances of the organism may be productive of a form of such a condition. Many cases of hematoma of the ovary I believe to be the result of normal physiological processes, and scarcely to require any treatment except rest and the avoidance of excitement. Organic lesions of the

cervix, whether resulting from laceration or from septic infection, have often been leading factors in the production of oöphoritis. Large abscesses of the vaginal wall or of the pelvic connective tissue have been the starting points of acute inflammation of the ovary.

Affections of the cecum or of the vermiform appendix have been in not a few cases the procuring cause. I have not infrequently noticed that the more serious forms of rectal or anal disease have been attended with much suffering from involvement of the uterine adnexa. So impressed have I become with the agency of these latter factors that I rarely enter upon the execution of any extended plan of treatment for the relief of suffering from affections of the uterine appendages until after I have made a careful examination of the condition of these portions of the intestinal tract. I have more than once met with a case in which salpingo-oöphorectomy had been resorted to without its affording relief, owing, no doubt, to the fact that the morbid condition of the rectum had been allowed to remain largely unattended to.

Not only disease of the rectum, but also abnormal conditions high up in the colon, sometimes seriously affect one or both ovaries. I have records of three cases of dysentery in which an ovary became thus implicated; in two of the cases the right ovary was involved; in the third case the suffering was severe on the left side. In all the three cases the enlargement and the pain were more or less persistent until after control of the intestinal trouble had been effected. In a case seen some eighteen months since, swelling and prolapse of the right ovary and tube were for upward of six weeks a most annoying sequela of an acute diarrheal attack. There can be but little doubt that in these instances the septic matter from the intestinal tract was the chief cause of the complication. Constipation and undue distension of the sigmoid flexure by the accumulation of fecal matter do at times intensify, if not give rise to, oöphoritis, especially that occurring on the left side.

Another cause of ovaritis will be found to be as the result of the graver forms of displacement of the uterus. Retroversion as well as retroflexion is sometimes a prominent factor in the production. Here it should be remarked that malpositions of the uterus, when left unrelieved, are liable to become a source of danger.

The presence of rapidly growing uterine myomata tends to exercise baneful influences upon the integrity and function of the appendages. This is often evidenced by the occurrence of pain and sometimes of excessive flooding during menstruation. The mere resort to salpingo-oöphorectomy for relief will not infrequently prove unavailing. The more recent experiences confirm the fact that nothing short of a surgical measure for the removal of the growths themselves before they have assumed extreme dimensions will be likely to eventuate in a cure and the saving of the appendages. Such a preservation is sometimes an important matter for consideration, particularly in the case of a woman who has not reached the menopause and who is desirous of fulfilling the objects of her marital relation. Tumors developing in the substance of the ovary sometimes prove to be the cause of much hyperemia.

Carcinoma as a diffuse infiltrating mass having its starting point in the epithelium of the ducts of Pflüger becomes, unless removed at an early date, a centre of infection to the neighboring parts. Carcinoma as a primary affection in this situation is quite uncommon; I have, however, seen two such cases, but fortunately they were in the early stages of development. The possibility of the existence of such a growth, when one is endeavoring to reach a satisfactory diagnosis of what would seem to be a serious form of disease of the ovary, should always be kept in mind. As far as my own experience has extended, I think that some of the various forms of sarcoma, such as adenosarcoma, fibrosarcoma, and myxosarcoma of the ovary, are more often here met with. Such growths occasionally take on degenerative changes. Eleven months since I saw a case of myxosarcoma that had undergone a calcareous change. I find, in my notes made some time previously, the record of a fibrosarcoma which had taken on fatty transformations. In both cases the patients had passed the menopause.

Accidents or injuries during parturition may be productive of oöphoritis. I have chanced to meet with cases of this character. A case of such an injury seen during February last was undoubtedly the result of a prolonged labor. When first called to the case there was no sign that septic infection had gained admission to the parts. There was no history of a previous suffering from an ovarian trouble. Soon after the close of the labor the left ovary was noticed to be considerably enlarged, and it became

painful. Rest, and local treatment maintained for some few weeks, proved sufficient for the reduction of the swelling and relief of suffering. I believe that a partial prolapse of the ovary first took place and that this was owing to the narrowness of the pelvis, which led to the compression of the tissues of the ovary against the harder parts of the surrounding structures. Contusion of any ovary from a more or less direct violence may occur. Such a result taking place during a railway accident may become a serious matter for consideration, especially when compensation for injuries is demanded.

In reaching a conclusion which this subject involves, the more obscure effects that a previous gonorrheal attack may have produced should be kept in view. The history of dysmenorrhea and sterility of the patient, the thickening, hardening, or closure of the Fallopian tubes, may sometimes open the way for an intelligent solution of the cause of the trouble. The finding of gonococci in the mucus coming from the vaginal introitus or from the endometrium will prove a valuable discovery while in the search for the cause of the suffering. In one case seen by me the claim for damages on account of alleged injuries to the uterine appendages was dropped when the fact became known that a child born at a date somewhat preceding the occurrence had been a serious sufferer from a gonorrheal ophthalmia.

Another interesting form of disease which I have met with has been that of a tubo-ovarian cyst. The enlargement in one case extended out toward the fimbriæ of the tube, and it could at intervals be distinctly felt on careful bimanual examination. In another case there had been previously much acute inflammation of the Fallopian tube; this had resulted in closure of the tube. Curettement about the ostium uterinum (right side) failed to effect an opening or to produce a discharge from the tube. Excision proved the only remedy for relief. Another case which I have seen I believe to have been that of an ovarian hydrocele, because the ovarian sac was situated at or near the opening of the abdominal portion of the tube. The sac became at times greatly enlarged posteriorly toward the broad ligament. There was no evidence that the fluid found its way into the abdominal cavity: it appeared to be prevented from taking that route by the presence of an adventitious sac or tunic to the ovary, which with the Fallopian tube formed a common cavity or reservoir. A peculiar feature which this preternatural condition presented was that the

hydrocele would become from time to time, as before intimated, much reduced by the irregular discharging of a watery substance through the uterus into the vagina. The fluid was limpid and resembled that from a hydrocele of the tunica vaginalis testis. The possible occurrence of hydrocele in this situation should always be kept in mind, and it is all-important to determine whether the condition has resulted from pyosalpinx or has become the sequel from distension of the Fallopian tube with serous fluid following inflammation and closure of its abdominal or celomic ostium. I have observed cases in which the attack was merely of a catarrhal character in its general aspect.

Hydrosalpinx occurring as a later stage of pyosalpinx, according to my observation, not infrequently assumes sooner or later most alarming phases, although I have met with a few cases in which spontaneous recovery finally took place. Such a fortunate result occurred in a case seen by me with the late Dr. E. P. Hurd, of Newburyport. The patient had had a history of pyosalpinx of the right side, though no radical operative measures had been undertaken for its removal. Later the collection became purulent and the local swelling and constitutional disturbances quite threatening. An early operation for excision was determined upon; during the night, however, before the morning that we were to meet, a spontaneous discharge of the purulent exudation took place through the rectum. The suffering shortly after that was greatly relieved. The patient from that time forward gradually and uninterruptedly improved; an operation for the removal of the appendages was subsequently regarded as unnecessary. There can be no question that the purulent matter had its seat in the Fallopian tube, for its enlarged, tortuous, and irregular outline could be easily and most satisfactorily mapped out.

Gonorrheal pyosalpinx is best denominated as a purulent salpingitis and is usually the result of a vaginal or cervical attack of gonorrhea that has extended its morbid influences to the endometrium and to the lining membrane of the Fallopian tubes. A gleet or watery discharge may be the sequel of an attack not unlike that which is passed from the male urethra, although it is usually much more copious in its extent. More or less adhesions of the tube to the surrounding parts may take place, or contraction or closure of its lumen may ensue. This condition, if the patient has not already reached the menopause, may lead to her

becoming the subject of dysmenorrhea and sterility. The latter condition I have sometimes thought was in some few instances a fortunate result, for if both Fallopian tubes become permanently sealed it will prevent the woman from begetting diseased offspring that may become dependent for support on public charity. I have nevertheless known quite a number of cases of genuine purulent salpingitis to terminate favorably; the women afterward to have married and to have led seemingly happy and useful lives.

I think, therefore, that our later experiences should justify us in regarding that, as a rule, a large class of cases of suppurative salpingitis would fairly well recover without the incurring of the necessity for resort to radical surgical treatment.

MANAGEMENT OF FACE PRESENTATIONS.¹

BY

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THREE years ago I had the pleasure of reading a paper on the management of face presentations before the Academy of Medicine of Cincinnati. As there is no more important subject in the domain of obstetrical surgery than the proper management of face cases, I have rewritten my paper and present it to you for your consideration. The subject of face presentations is best dealt with under three general divisions, namely:

1. The management before and during dilatation of the os.
2. When the chin is anterior.
3. When the chin is posterior.

The skilled obstetrician of the present day is the conscientious physician who studies his case before as well as after labor; who looks out for the welfare of his patient from a different standpoint than did former obstetricians. The practice of midwifery has made very rapid strides in the last few years, and one of the important advances, if not the most important

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next to asepsis, is that of abdominal palpation for diagnostic purposes. The most sceptical now know with what ease we can diagnose vertex, breech, and cross presentations by abdominal palpation, and with great care in experienced hands the brow may be made out. While face cases may exist before dilatation of the os, this condition should be considered as a rarity, as it is now generally known that a face presentation results during the process of delivery, the brow preceding, and during its passage through the brim a mento-anterior or posterior develops. Face presentations are unusual; the majority of obstetricians claim that they occur about once in two hundred and fifty cases of labor, and it is not an uncommon occurrence for us to hear of physicians, enjoying a large clientèle, practising many years without seeing a case of face presentation.

THE MANAGEMENT BEFORE AND DURING DILATATION OF THE OS.—The management during this stage deserves special study, as it is the duty of obstetricians to give to the patient, by means of proper advice, every chance to help herself, and, if not successful, to try by manual means to rectify the malpresentation. The view of many that we are unable to accomplish much by external correcting of positions does not agree with the opinions of advanced obstetrical scholars. I consider the management of this stage in the following manner, namely, postural treatment, Schatz's and Baudelocque's two methods.

Postural Treatment.—This method is only practical when the chin is posterior. It may be divided into three subdivisions, each having its advocates:

1. Place the patient on the side that the chin points to, in a Sims position, and by means of gravity the head is taken away from the superior strait, and in this way flexion may be substituted for the beginning of extension—in other words, a substitution of a vertex for a brow.

2. Have the woman assume the knee-chest position, with the hope that by means of gravity the brow will be removed from the inlet and when the patient assumes the recumbent posture a vertex may occupy the superior strait.

3. The position that appeals to me very strongly is the so-called Trendelenburg posture; this also may accomplish a change in the presentation by means of gravity.

Schatz's Method.—An assistant presses upon the breech and head, while the operator makes pressure upon the thorax of the child in the opposite direction, by means of which flexion of

the fetal body and head follows. In some very unusual cases, where the child is freely movable, this may be accomplished, but in the general run of cases I cannot conceive the practicability of this method.

Baudelocque's Methods.—In practising Baudelocque's methods always try and use due care not to rupture the membranes until the os is fully dilated.

First method: Consists in both external and internal manipulations. The fingers in the os push up on the chin, and the other hand externally presses down upon the occiput. This treatment is far from being new to obstetricians; its practicability and usefulness appeal to us all.

Second method: Introduce the hand into the uterus, pull down the occiput, while externally the other hand makes pressure upon the back of the child so as to flex the body; or introduce the hand into the uterus, pull down the occiput, while externally the hand makes pressure on the thorax of child so as to flex the body. Methods like the above are objectionable in that the hand must be introduced into the uterus, and such a procedure is always fraught with danger. Shock, hemorrhage, and sepsis are three important factors against the introduction of the hand into the uterus, and, unless version is contemplated, do not subject the patient to the above three dangers.

MANAGEMENT OF MENTO-ANTERIOR POSITIONS.—It is extreme folly for the obstetrician to always predict an easy labor when the chin is anterior; for a glance at the history of mento-anterior positions shows us that labor is more tedious than the ordinary vertex case, and with a greater mortality both as to mother and child. This naturally does not apply to that unfortunate class of cases—namely, premature births—which are very frequently delivered as face cases. It is also not uncommon that a face presentation is accompanied by some complication, so it behooves the practitioner to be somewhat guarded in his prognosis, even under the most favorable existing circumstances. In all operative work in the practice of obstetrics, four things, in my judgment, should be strictly carried out:

1. Empty the lower bowel of all fecal matter.
2. Be sure that the bladder is empty.
3. Absolute cleanliness.
4. Always use an anesthetic, no matter how trivial the operation.

Mento-anterior positions will be treated in the following man-

ner: When the face is at or has just passed the brim, or when well down in the pelvic cavity. The chin being anterior is considered a favorable presentation, and non-interference is generally countenanced and practised by the majority of obstetricians. We must be governed by all existing conditions determinable as to whether interference is justifiable, and Reynolds says that, with the face at or above the brim, watch the case carefully and leave the birth to Nature: (1) when the woman is a multipara; (2) when the former labors were easy; (3) when the soft structures are soft and dilatable; (4) when the pelvis is ample; (5) when the child is of normal size; (6) when the pains are frequent and uterus powerful; (7) when no pathological obstruction exists.

Should the woman be a primipara I would also give an opportunity for Nature to deliver spontaneously, provided no pathological hindrance to a normal birth exists.

CASE I.—Mrs. O., a primipara, aged 18, healthy and well developed. When called to see patient I found that she was in the second stage of labor and having good, strong, regular pains, and upon vaginal examination a face presented with the chin to the front. As constant but slow advancement of presenting part was taking place, I decided upon non-interference, as there was no obstruction to delivery discernible. With the exception of the appearance of the child after birth, its condition was all that could be asked for. Male child, weight eight pounds. Face and lips were very much swollen and discolored, and, as there was difficulty in the child's swallowing for three days, the parents were somewhat alarmed; but having taken the precaution to warn them as to the probable appearance of the child, no dissatisfaction existed. I cite this case, as I think it is a good example for non-interference on our part, even if the patient is a primipara.

Some few writers claim that better results can always be obtained by flexing the head—in other words, changing from a mento-anterior to an occipito-posterior position. This practice I cannot approve of; nay, I even go so far as to say that we are interfering with Nature instead of aiding her. Occipito-posterior positions are difficult to manage, and of the two evils always give me a mento-anterior presentation to deal with. If you should consider that the case is one that should not be left to the efforts of Nature to deliver, or if you would always in-

terfere, select a primary podalic version, as that will give you better results.

The forceps applied to a face case at the brim is an extremely difficult operation, and, unfortunately, is rarely accomplished without injury to the mother and much danger to the life of the child. Nearly all writers strongly advise against this method of treatment, unless no other is feasible. The face well down in the pelvic cavity, I would let Nature have full sway, provided constant headway was being made. The finger placed in the rectum of patient, and pulling up on the head of the child, may be of some assistance to its birth, and also may afford some protection toward the support of the perineum as it is lifted up, as suggested by Goodell. I would not practise this method unless there was some delay in the head sweeping over the perineum, as I consider this a fruitful means toward making your patient septic. If there is no progress, the face remaining in the pelvic cavity, then we have two methods of managing the case:

1. Apply the forceps, try to deliver (always selecting a strong pair, as considerable traction will have to be made), and thus we assist Nature to do what she, unaided, cannot accomplish.

2. Lift the face above the brim, flex the head, and make an occipito-posterior presentation. If the woman and child be in good condition now, the case may be left to the efforts of Nature, provided the corrected presentation remains as such; but if the patient's strength is waning, her expulsive power decreasing in force, and the pains diminishing, apply the forceps and try to deliver. It might aid if, when the presenting part was well under the symphysis, we place the woman in the Walcher position, as by this means we have a gain of one centimetre in the antero-posterior diameter. When rotation begins remove forceps and reapply them; but if we are so unfortunate as to encounter a case where the head will not rotate, then lift the head above the brim, turn the child, and deliver feet foremost.

MANAGEMENT OF MENTO-POSTERIOR POSITIONS.—It is needless to say that a chin posterior is a grave condition to encounter, and it is with much hesitancy that I state what must be its management, as we cannot have the head adapt itself in a complete manner to the pelvis. Should it be regarded as so serious as to always call for some interference, or is it our duty to trust to Nature to rotate to an anterior position? I am strongly of the opinion that interference is always justifiable when the chin points posteriorly, either at the brim or in the pelvic cavity. If

it is possible, never allow the chin to enter in a posterior position; but if we are late in seeing the case, and Nature should be so kindly rotating the chin to an anterior position, we can indeed congratulate ourselves. The chin prominent, neck well extended, and the occiput below the promontory of sacrum in a capacious pelvic cavity, it is reasonable for us to suppose that rotation will occur; again, the chin plays the same rôle as does the occiput in vertex cases, the chin entering the pelvis deeper than the most prominent part of the forehead, the greater the chance of rotation. We take a serious chance in waiting for rotation to take place, and the question arises, are we justified in so doing? Winckel makes the following forcible statement: That labors in which the maternal death rate is approximately one in seventeen, and fetal one in ten, are not to be contemplated with folded hands. The dangers of leaving the case to Nature are many. The labor is always a tedious one; extension must be marked for an anterior rotation to occur, and so great pressure and strain must necessarily be placed upon the neck; the blood vessels are injured, and in some cases a decided intracranial hemorrhage has followed. With such an injury to the neck and head it is seldom, if ever, that a live child is born. Rotation may be partly accomplished, when the occiput catches upon the shoulder, bringing the face into a transverse diameter, and then all progress ceases. It is also a well-known statistical fact that mento-posterior positions are frequently complicated, whereby dystocia may result. The longer the delay, not only is there great danger to the life of the child, but that of the mother is also placed in jeopardy, and if rotation is not accomplished the child cannot be born alive. The face at the brim may be changed into a favorable vertex presentation by manual means. The hand introduced into the dilated cervix, lift up the face and brow, flex and bring down the occiput. The majority of authors claim this is not a difficult thing to do, but no less an authority than the late Lusk claimed that it was far from being easy of manipulation. This procedure should always be given the first consideration, and, if not successful, try turning the chin to an anterior position by means of the hand. Turning the head with forceps is a dangerous method even in skilled hands, but it now has its place and its advocates, and in such a case may be resorted to, using preferably the straight-bladed instruments. The application of forceps after the head is flexed or the chin turned anteriorly depends entirely upon the con-

dition of the mother and child. If good, let Nature alone; but if the pains are feeble and condition grave, do not hesitate, but apply forceps and deliver as soon as possible. The following case has many points of interest:

CASE II.—Patient aged 28. Had had one child after a tedious labor, which is living to-day, aged 4 years. Membranes ruptured twelve hours before I was called to see the patient by a midwife. Pains every three minutes, but, according to midwife's statement, "they are much weaker than an hour ago." Patient states she had not felt any life for two days. Upon abdominal palpation I very easily detected the back of the child to the right and front, head below and breech above, but upon auscultation I could not hear the fetal heart. Vaginal examination: Vagina capacious; secretions scant; unable to feel the promontory of sacrum; os soft and dilated; face presented with the chin to the left and posterior, brow to the right and anterior. Dr. J. S. Caldwell saw the case with me, and after a thorough consultation we determined to try and flex the head and so convert it into a R. O. A. position; but I was unable to accomplish this, so the next procedure I tried was to rotate the face, so as to bring the chin to the left and front, and I was surprised with what ease it was done. I then applied the axis-traction forceps, but before making traction an examination revealed that the face was back in its original position. The blades were removed, I again rotated, then held the face in proper position while I put one blade of forceps on with the other hand, and, as this blade kept the face from returning to its original position, without much difficulty the other blade was applied. Under our united traction the face slowly advanced, and when we were congratulating ourselves upon our progress the forceps began to slip. I removed this pair and applied another; but we could not make any progress, so I again applied the axis-traction forceps. After five applications of forceps, and with much mortification at the blades slipping, we succeeded in delivering the woman of a large male child weighing nine pounds and ten ounces. The child was still-born, and from its appearance it had probably been dead a few days. The face and lips of the child were much swollen and very black, the head large and flabby. Perineum not torn, but, as I stated, the vagina was very capacious. Patient made an uninterrupted recovery. Here was a case where the forceps slipped after application, and the explanation given why they would not hold is the large,

flabby head of the child. A very proper question might be asked: With a history as this case presented, would it not have been better to have made a craniotomy? I might answer this by saying that if our foresight were as good as our hindsight we would do differently in many cases. When we are unable to flex or turn the chin to the front the operation of version is applicable. If we have a case where the head is abnormally large, the arm and cord prolapsed, or the chin turned to the anterior position and will not engage, version will best serve the interest of child or mother. This plan of treatment I chose in the following case.

CASE III.—Patient aged 19. External palpation and examination previously made by the interne and myself. L. O. A. position. Pains feeble and dilatation of os very slow, and the first stage was not completed until after patient had been in labor seventy-two hours. Patient's condition was good, but with descent, instead of usual flexion, extension took place, and so a L. O. A. was turned into a R. M. P. I tried to change the position back to a vertex, but failed to keep it there. Then I applied the forceps, but after they were in place the right mento-posterior was always presenting, so, of course, I could not make traction; and as I did not care to try turning the head with the forceps, I resorted to version. The child was still-born, weight eight pounds. Mother's recovery protracted, but she left the house in good condition.

The face being in the pelvic cavity, with the chin posterior, lift the face up to or above the brim and try flexion or turning chin to front. The question now as to whether to resort to version at this stage depends upon the condition of mother and child; if mother's condition is good and she is not exhausted, and the child is alive, we may make a podalic version; but the fetal mortality in such a case is very high. If we are not able to lift the face—in other words, if we meet an impacted case—four things suggest themselves, namely, forceps, symphyseotomy, craniotomy, and abdominal section.

Forceps.—It must indeed be a selected case where the chin is posterior that we can countenance the application of the forceps. Traction with a mento-posterior presentation will make the evil a far greater one, and can only be condemned, except in cases like the following: (1) a premature child, chin right down upon the perineum; and (2) when the case is seen late and the chin is distending the perineum to its greatest extent. Before

the forceps is applied I would make deep lateral incisions into the perineum, for a clean cut is better than a sloughing, ragged edge. This child, from such pressure, must be dead, as I am not cognizant of any living child going through such an ordeal and living.

Craniotomy.—When we are positive that the child is dead, we can look upon the case in no other light than that of a foreign body to be removed, and the easiest and at the same time the best method is to simplify delivery by making a craniotomy. This operation at the present day is justly not made with the same frequency as formerly, and modern authors, with the exception of a few, now claim that craniotomy, in our enlightened surgical era, should never be made upon a living child, no matter when or what the existing conditions.

Symphiseotomy.—This operation has assumed the position that it is justly entitled to, and in selected cases where impaction has occurred it ought to be given serious consideration, provided that the child is alive. Notwithstanding many unfavorable reports that have been presented, I firmly believe this is the operation which will be adopted in the future as the only surgical procedure in all cases of impacted face, the child being alive and the mother in a fair condition. In those cases where the woman has been in labor for days and thoroughly septic, then a symphyseotomy will only hasten death.

Abdominal Section.—So grave an operation, at such a time and for such a condition, must necessarily be a subject for much discussion, and, from the disparaging histories and statistics of the few reported cases, I doubt very much whether it will be countenanced in the future.

RETRODISPLACEMENTS OF THE UTERUS IN YOUNG GIRLS AND UNMARRIED WOMEN—THEIR FREQUENCY AND BEST METHODS OF TREATMENT.¹

BY

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POSTERIOR displacements of the uterus are universally recognized as being capable of producing many different and diverse

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symptoms, either from pressure upon neighboring organs or reflexly upon remote ones. In married and child-bearing women these displacements are very common, and are perhaps responsible for more suffering than often results from the more serious diseases of the tubes and ovaries. Modern pathology has taught us the importance of recognizing these displacements early, since they predispose to structural changes not only in the uterus and its lining membrane, but, by continuity of tissue, involve the adnexa. These deviations are no doubt the result of defective development of the organ, or they may be due to injuries inflicted during early girlhood—perhaps before or after puberty—to falls and to accidents of various kinds. They remained unnoticed because they perhaps produced no symptoms, and they were unsuspected until the uterus increased in size and weight and began to functionate. After a few periods came symptoms, and reflexes appeared, due to obstructive or congestive causes which interfered with the natural menstrual exit. It is fair to assume that a normal uterus with healthy appendages poised in a healthy body should perform its functions in a painless and natural manner, and, other than a sense of discomfort, nothing should mark the menstrual crisis. This Utopia of physical development is not often seen, because varying degrees of pain, from slight distress to the greatest agony, is the unfortunate picture of many of our girls, due to numerous causes, both constitutional and local. Various forms of dysmenorrhea are graphically described by our writers on these subjects, and whether we accept these varieties under their special headings is immaterial. One thing is certain, that a malplaced uterus may sooner or later offer an obstruction to the menstrual flow, either on account of the flexion which exists, or the congestion and the associated thickening of the lining membrane. However, dysmenorrhea is not the only symptom seen in these cases, but there exist often severe backache and bearing-down pains, pains in the groins, and various reflex symptoms in the shape of nervous dyspepsia, irritable bladder, hysterical aphonia, fits, clutching at the throat, irritable heart, pain in the top of the head and nape of the neck, and various visual defects; in fact, there does not seem to be any limit to the widespread disorder of function which can be clearly and fairly traced to these malpositions.

There is a popular belief that so-called womb trouble exists only in married women, or women who have borne children or have had miscarriages or accidents of some kind, and I occa-

sionally meet a medical man who is of the same opinion. As a result, young girls and maiden women are permitted to go on suffering for years and often into chronic invalidism without relief. Irreparable diseases of the tubes and ovaries result, and various radical and mutilating operations become necessary. Medical men have shrunk, and with some justice, from instituting vaginal examinations in young women, feeling that such examinations are so often unnecessary—as their causes of ill-health are more constitutional than local—and that they not only shock the highly sensitive nature of a modest young girl, but direct her mind to her genital organs. All this is true, but having once demonstrated that in a particular case the symptoms are either dependent upon or increased and accentuated by a possible posterior uterine displacement, an examination should at once be made by the rectum, and, if such a condition exists, then there is but once course indicated, and that is a curettage and Alexander operation.

A certain amount of reserve on our part has been highly commendable, and no self-respecting physician could make a vaginal examination in a young girl or woman unless a strong necessity existed. Experience has broadened our knowledge, and those of us who deal largely with the sufferings of womankind have realized that it is a crime to permit young girls to go on suffering and be dosed with all kinds of medicines *ad nauseam* without a proper diagnosis being made of their troubles. During the past five years, and I may say since the general acceptance of the Alexander operation, I have been surprised to find how frequently young girls from 15 to 20 years of age suffer from retro-displaced uteri, and I have been delighted to know that a great many of these young women have been brought from conditions of nervous wrecks and lives of suffering and invalidism to good health by a properly performed Alexander operation. Before this operation was understood and surgeons had mastered its technique, there was little to be done to alleviate these young women. A pessary, which at best is a nuisance, can do very little good in this class of cases. They are not aente retroflexed uteri which need only to be held up for a few months, but most of them are retroverted poorly developed organs with ligaments permanently stretched and lengthened out. The introduction of a pessary is usually so painful that these young women shrink from their employment, and feel that they would sooner suffer the ills they have than fly to the weekly or bimonthly agony

caused by the withdrawal and the introduction of these supports. Tampons, electricity, or any other non-operative measure can offer no permanent relief, and they are at most times painful and shocking measures. Many young girls and unmarried women have been compelled to undergo the operation for appendicitis, and as no examination for appendicitis can be complete without instituting at the same time a pelvic examination, either by the rectum or the vagina, these uterine deviations have been frequently noticed, and I have often wondered whether these malpositions had not contributed to the appendiceal trouble, if not directly, at all events indirectly by keeping up a condition of ill health with its associated bowel catarrh and constipation. Young married women who have never borne children and never had a miscarriage frequently come under our care, and we find them suffering from a retroverted or retroflexed uterus with or without tubal and ovarian disease. There cannot be any question that this condition existed before marriage, and that marital life simply lighted up and added to latent and dormant troubles, and had a diagnosis been made earlier and the uterus placed where it should have been, useful, happy, and fruitful women would have resulted from the union. The old maid and spinster, after she has gone the rounds of the stomach doctor and the nerve specialist and the eye doctor, finally after much personal persuasion submits to a local examination, after she is a broken-down neurasthenic with no physical force and less money. She is told that she has a tipped womb, and she submits to an Alexander operation, and even in many of these cases, late as it may be, an improvement to health and function results by placing her atrophied organ in a proper position, together with the curettage.

I cannot make any statistical calculation as to the percentage frequency of this condition compared to the number of women examined, but, looking over my list of Alexander operations, I find that out of my last fifty cases nine occurred in the unmarried, and eleven in those who never bore children nor had miscarriages; the youngest was 15 years of age and the oldest 48, and if we assume that only the greatest sufferers fell into my hands, because many of my cases are referred to me by other medical men, I am sure the number of girls and unmarried women who have misplaced uteri must be very large indeed, but, of course, in many persons it causes no trouble.

The treatment, as I have frequently said in this paper, is to perform dilatation and curettage and the Alexander operation. Never once have I failed to find the ligaments, although sometimes they were delicate and friable, and only once have I broken a ligament so high up that I could not get a further hold so as to complete the traction. I have, moreover, been surprised to find how large the ligament is in the young and unmarried, and I am beginning to doubt that married women have larger ligaments than single women, consequently the operation is just as easily performed in the one as the other. Old cases of extreme retroversion, whether in the old or young, usually have thinner and more delicate ligaments, and they do not pull so readily out of their peritoneal covering, probably from adhesions between the ligament and the peritoneal envelope. Oftentimes the ligament at its pubic end or point of origin is so thin that only a few threads are found, but if these be carefully nursed and gently pulled upon, soon the larger and thicker fleshy belly comes into view, when stronger and more deliberate traction can be successfully made.

As I have said in previous papers, the operation consists in cutting through the skin and fat and delicate fascia, and thoroughly exposing the fibres of the external oblique; then definitely locate the external ring, usually a little above and to the outside of the spine of the pubes. Sometimes there is no definite opening with its little knuckle of fat, but simply an indefinite slit, but if the tissues be slightly pulled upon at this point a few fibres of the ligament can be felt coming through from the deeper parts. If the fibres of the ring be now nicked a little, the ligament will be seen to lie in the canal perhaps with its accompanying nerve. It must, however, be understood that the ligament is always found and picked up at or in the ring, and the canal is never opened unless the ligament is broken or does not pull out satisfactorily.

Let me now conclude this paper by making these deductions:

1. A plea for the more careful examination of young women by competent and skilled men who can undertake any operative measures that are necessary.

2. Every case of retrodisplaced uterus in the young or unmarried or married woman may not require any treatment.

3. If they produce a definite symptomatology, the Alexander operation should be employed, if the case be an operable one;

that is, if the uterus is freely movable and the tubes and ovaries are healthy.

4. Retroversions and retroflexions in the young and unmarried should never be treated by pessaries, but by the Alexander operation. Tampons and pessaries have their place in retrodisplacements in married women or women who have been pregnant, but they accomplish practically nothing in the displacements of young women.

5. The Alexander operation is safe and without mortality incident to the operation, and no harm can come from its proper performance; even if the uterus subsequently falls, the patient is no worse off than she was previous to the operation.

6. It does not in any way interfere with pregnancy and future child-bearing, but on the contrary materially helps the possibility of pregnancy.

7. No pain or distress follows the operation if the case operated upon be properly selected; and if pain and suffering result, there existed at the time of the operation latent tubal and ovarian trouble, which sooner or later perhaps would have required a radical operation. If it becomes necessary to do a celiotomy on a person who previously had an Alexander operation, the uterus will be found in its normal anteflexed position, which is necessary in every case, whether the tubes and ovaries are removed or not, to insure good health and freedom from future suffering.

THE MECHANICAL OR COMBINED PLASTIC AND MECHANICAL TREATMENT OF RETRODEVIATIONS OF THE WOMB.¹

BY

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OWING to the frequent discussion of the surgical treatment of retrodeviations of the womb, the impression is prevalent that the mechanical treatment has become obsolete. This opinion finds further warrant in the fact that some of the writers of recent text books give the old treatment but a passing notice.

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These authorities would relegate the pessary to a very limited sphere and advance operative interference to the forefront.

In this paper it is intended to lay special emphasis upon the methods of treatment by which the womb is restored to its proper place by mechanical or combined plastic and mechanical means. Too often are serious operations performed, involving risk to life or to the integrity of the abdominal wall, when safer and equally successful procedures would suffice. A pessary alone, or a pessary rendered more effective by a preliminary plastic operation, will answer the purpose in many cases. Guided by my experience, I would repress this too strenuous operative tendency and reverse the teaching by advocating the tentative use of mechanical means in properly selected cases, and limiting operations to cases for which they are specially indicated.

The operations to the indiscriminate use of which objection is raised are those requiring opening of the peritoneal cavity or cutting of the abdominal wall, and are entitled "suspension operations," in distinction from those styled "plastic," which include curettage and repair of cervix or vagina.

For the sake of euphony "retrodeviation," "retroversion," and "retroflexion" are used as synonymous terms. The object of the treatment is to replace the womb and to support it until it can retain its normal position without further aid. The plan of treatment is based upon the character of the displacement. The possible efficiency of pelvic massage is not considered, because it has not been practised by the writer.

We classify retrodeviations into *simple* and *complicated*. The complicated retroversions are subdivided into those with *movable* and those with *fixed* womb.

Of 1,055 cases examined in my office for pelvic disease between January, 1896, and July, 1901, 223 were backward displacements of the second and third degree. Cases of the first degree were excluded. Twenty-two were simple, 201 were complicated; 162 with movable, 39 with fixed womb; 107 were examined for diagnosis and never returned; 116 submitted to treatment; 63 of the latter, constituting over one-half of the cases treated, were selected as proper subjects for mechanical treatment; they were treated by means of the pessary alone, or the vaginal plastic operation was supplemented by a pessary.

The table¹ herewith submitted contains the details of these 63 cases. Those in which the womb has retained its normal position a year or more after removal of the support are classified as cured; those still wearing a pessary, but relieved of symptoms previously complained of, are considered symptomatically cured. Among these there are a few who probably are cured and could dispense with the use of a support, but decline to do without because they feel well and do not care to risk a relapse. The term improved includes the more recent cases that claim to feel better, and those whose improvement is evident but who still decline the plastic operation necessary for a cure.

The following is a summary of the results:

Number of cases treated.....	63
Simple	13
Complicated { with movable womb.....	44
{ with fixed womb.....	6
	50
Cured	11
Symptomatically cured.....	15
Improved	26
Not improved.....	11

SIMPLE RETRODEVIAION.

Number of cases treated.....	13
Cured, 1; symptomatically cured, 2; improved, 10.	

It has been doubted that retroversion, as such, causes any symptoms; that it does produce symptoms of its own is proved by the almost immediate relief from local and reflex disturbances after replacement. Rosie A. (No. 3), domestic, 18 years old. First menses at 14, regular since. During the past year she has been having a tearing pain down the left limb throughout the menstrual period; she is constipated; suffers pain to faintness before defecation; has constant pain in the lower abdomen; has desire for food, but is nauseated. Sleep is poor; memory very poor; she is very nervous and has constant headaches. She does her work, but tires easily, and her limb feels heavy. The uterus is enlarged and thickened, dense to the touch, retroverted; the sound enters two and three-quarter inches; the cervix is conical; there is no discharge. The uterus was replaced by digital manipulation and a pessary used. One month later the patient reports that her last menses were without pain and that all her com-

¹Will be published in full in the volume of Transactions of the Association.

plaints have disappeared. Examined eighteen months later, the uterus is normal in density and position.

Mrs. M. (No. 38), aged 32; married 13 years, mother of four children. Her menses are regular, without pain. There is no vaginal discharge. During the past month she has been feeling weak and faint; during the past ten days she has had several attacks of severe, sharp pain in the back—she “couldn’t turn.” The pelvic floor is slightly relaxed, the uterus retroverted in the third degree. The uterus was replaced with ease and a pessary fitted. She returned in three days relieved of the weakness and pain. A month later she again felt weak and faint; examination disclosed the uterus had slipped over the pessary. Immediate relief was afforded by a larger pessary.

Mrs. M. (No. 43), aged 33; has had one child, eleven years ago. She had worn a pessary for four years for retroversion. During the past five years she had been without a support, enjoying good health. Three weeks ago she was taken with a stinging pain in her left side from the groin to the region of the heart; there was pain on the chest and backache. The uterus was found retroverted; it was replaced and her old pessary was again used. I quote her report on the following day: “I felt better on arriving home yesterday, and feel decidedly relieved to-day.” She has continued well the past six months, still wearing the pessary.

Numbered among the improved cases is one that demonstrates the consequences of reckless operating in simple retroversion. It is the only case in which any operation was performed:

Miss C. (No. 9), of Akron, school-teacher, aged 27. She went to a sanitarium because she was “generally run down” and had a poor appetite. Four days after her arrival, without previous attempt to replace or support the uterus, the Alexander operation was performed by a skilful surgeon. She remained in the sanitarium for twelve weeks. On her return a local physician was obliged to put in a pessary to enable her to walk any distance—a difficulty she had not experienced before her operation. When seen by me she was very nervous; unable to concentrate her mind; sleepless. She had been for five months without a pessary, but felt that she must wear one again to facilitate walking. The uterus hangs low in the pelvis, in the first degree of retroversion. The right kidney is movable. A retroversion pessary and an abdominal supporter afford the desired relief.

Simple retroversion is not as rare a condition as some would have us believe. The failure to replace a womb, especially under anesthesia, is often interpreted as positive evidence of its fixation by adhesions. The womb may, however, be wedged in between the utero-sacral ligaments, simulating a fixed uterus. The differential diagnosis between a womb thus wedged in and one that is bound down by adhesions is sometimes impossible. I have been thus deceived in a number of cases in which abdominal section disclosed the non-adherence of the uterus, which had seemed fixed at the time of the bimanual examination. In the following case this error was fortunately discovered in time:

Miss W. (No. 63), aged 22, seen in 1895. She had met with an accident six years previously; since that time she has been subject to frequent hysterical spells and is subject to a feeling of fear when left alone. Her extremities are always cold. There is a profuse mucous vaginal discharge. She has a constant pressure in the pelvis, as of some obstruction to bowel movement. During the past six weeks she has been confined to bed. Examined under ether, the retroverted uterus cannot be dislodged by manipulation or sound and is considered adherent. She was prepared for curettage and ventrofixation. While dilating the cervical canal the uterus suddenly became freely movable. The laparotomy for which she had been prepared was abandoned; the uterus was easily replaced and supported by a pessary. The improvement was marked and rapid. She has since acted as nurse, done general housework, and is now on her feet all day clerking. She still wears her pessary, preferring to take no chances of relapse.

A retroverted womb uncomplicated by pelvic disease, whether producing symptoms or not, should be replaced and properly supported. When the symptoms are due to the displacement, but the patient cannot or will not wear a pessary, or when the pessary, though well fitted, fails to maintain the womb in the normal position, a suspension operation is indicated.

COMPLICATED RETRODEVIATION.

1. *With Movable Womb.*

Number of cases treated.....	44
Without operation.....	18
With plastic operation.....	26
Cured, 8; symptomatically cured, 13; improved, 14; not improved, 9.	

Retroversion is generally associated with other pathologic conditions, such as pelvic inflammation, endometritis, subinvolution, laceration of the cervix, prolapsus uteri, prolapsed diseased ovary or ovaries, relaxed vagina, lacerated perineum. The complications are the causes of much of the suffering that was formerly attributed to the displacement.

When retroversion constitutes only one of the links in the chain of injuries caused by parturition, replacement and support alone do not suffice. The operations, singly or combined, of curettage, trachelorrhaphy, resection of the vagina, as may be indicated by the nature of the case, are the essential preliminaries to the restoration of the womb to its normal place. The complication being first overcome, a pessary can now be used in the manner recommended for uncomplicated cases. If the pessary prove ineffectual or the patient will not or cannot bear it, one of the operations for suspension of the womb becomes necessary.

Good judgment must be exercised in determining the character and scope of the surgical intervention. It has been my custom to perform those operations only that do not involve opening of the peritoneum, whenever it seemed probable that a pessary could subsequently keep the womb and appendages in good position. To be more explicit: Given a movable, retroverted uterus, with prolapsed, enlarged, engorged ovaries, lacerated cervix, and relaxed perineum, I do the uterine and vaginal plastic work only at this operation. After two or three months the womb is replaced and a pessary fitted. The suspension operation is reserved for the cases that are not practically cured by the means mentioned, and for those in which the appendages are diseased sufficiently to require opening of the peritoneal cavity on their own account.

Mrs. O. (No. 46), aged 40, mother of two children, the last 9 years old. Her menses are regular, without pain; she has had "falling of the womb" since her first confinement. "Things feel as if coming away from below." She has worn a support, but it has done no good. A prominent specialist has proposed removal of an ovary, ventrofixation, and vaginal repairs. She has a perineal laceration with rectocele; the cervix is lacerated, its anterior lip is greatly hypertrophied, projecting from the vagina like a fibroid polyp; the uterus is retroverted, three and one-half inches deep; the right ovary is prolapsed and enlarged to the size of a walnut. The patient readily consented to my

proposal to curette, amputate the anterior lip, and repair the cervix and perineum. Six months later the uterus was replaced and a pessary fitted. She continues wearing her pessary, the enlarged ovary cannot be felt, and she enjoys better health than she ever did in her life.

When retroversion is complicated by aggravated prolapsus uteri, reconstruction of the relaxed pelvic floor, together with support by the pessary, does not suffice. Intra-abdominal pressure will in time overcome all resistance from below; it is therefore essential to success that the vaginal plastic be performed simultaneously with the suspension operation, or, in some cases, with hysterectomy.

2. *With Fixed Womb.*

Number of cases treated.....	6
Without operation.....	3
With plastic operation.....	3
Cured, 2; improved, 2; not improved, 2.	

In many instances the womb is bound down by adhesions, or it is included in a mass of exudate, or it is crowded back by a tumor. The inflammation or the tumor constitutes the disease, of which the retroversion is not a link but merely an incident; hence the treatment is directed to the relief of the peritonitis or to the removal of the growth. Fixed uteri are treated as part of, or as consequence of, the pelvic inflammation, not as displacements. With but few exceptions the replacement and retention of the womb becomes a subordinate part of the operation which may be indicated for the removal of the growth or of the diseased appendages.

In exceptional cases of pelvic inflammation, after the subsidence of all acute symptoms, prolonged treatment by tampons and by pelvic massage effects absorption of adhesions and facilitates replacement and ultimate cure by pessary. Adhesions may also be absorbed during pregnancy.

SUSPENSION OPERATIONS.

Operations for suspension or fixation of the womb involve opening of the peritoneal cavity and cannot be said to be free from danger. The original Alexander operation may not penetrate into the cavity, but it opens the layers of the abdominal wall and is known to have been occasionally followed by hernia.

Ventral and vaginal fixation add the possibility of dystocia to other risks.

The increasing variety of these operations, the frequent shifting from one method to another, and the discovery of their respective defects and shortcomings are sufficient proof that we have not yet attained our ideal. They are not always cures. Quite a few are either immediately or ultimately partial or total failures, rendering necessary the wearing of a pessary despite the operation. Remembering that we are still in the experimental stage and that they become necessary in only about one-third of the cases selected for treatment by mechanical means, it seems to me we ought not to perform the suspension operations simultaneously with the plastic, but at a later period after the failure of the safer methods, unless other pelvic conditions make abdominal or vaginal section imperative.

THE RETROVERSION PESSARY.

Many surgeons and some gynecologists, lacking the necessary patience and possibly the time, have learned to "short-cut" all intricate problems and regard the advocate of the pessary with a look of pity mingled with derision. To command the best results from this simple device often requires more diagnostic ability and longer experience than does the concomitant plastic operation, and it requires as much mechanical skill. I would sooner trust the tyro with the technics of an operation of which he can imitate the successive steps, than with the process of moulding, fitting, and placing of a pessary, which he cannot copy because it is invisible. The pessary is no more an instrument to be used by the inexperienced than is the uterine sound or the catheter or the obstetric forceps.

The purpose of the pessary is to elongate the relaxed vagina by lifting the posterior vault, which in turn draws back and holds the cervix in its normal position. Made of hard rubber or celluloid, moulded to fit, and worn under proper supervision, it is clean and safe. The patient does not realize its presence in the vagina and can continue wearing it for years with perfect comfort. It does not interfere with sexual relations or with conception and causes no dystocia.

It is urged against the pessary that the number of cures is small; that it does harm by distending the vagina; that by becoming encrusted it leads to ulceration; that by pressure it

aggravates irritated or inflamed organs; that it is not clean; that it is too annoying and its use too long drawn out to deserve consideration in comparison with the neat, rapid, and safe surgical substitutes of to-day.

Seventeen per cent of my cases treated by the pessary have been cured; 24 per cent have been symptomatically cured; 41 per cent have been improved; and only 18 per cent have been total failures. The time required for cure has varied from one month to twelve years; the average time was two years and nine months. This is an emphatic contradiction to the assertion that unless a pessary effect a cure in three months it will not cure at all. The pessary that unnaturally distends the vagina is a misfit. The length of the posterior vaginal wall and the width of the vaginal vault should be our guide. The pessaries, as manufactured, are too short in proportion to their width and sharp pelvic curve. More length, less width, and more gentle curve are needed. A virgin may require a longer instrument than a multipara. I consider it a misfit to introduce a pessary into the vagina without having replaced the uterus; or to place a pessary so that the upper bar compresses a prolapsed ovary against the sacrum; or to place one so that it crowds up against a pelvic exudate mistaken for a retroflexed uterus. Abuse of this kind will soon cause discomfort sufficient to prejudice patient and doctor against further effort. The fault lies, not with the pessary, but with the directing hand behind it. Neglect may lead to ulceration or to incrustation, or both. Removal once in three months, or sooner on complaint, and a daily alkaline douche, constitute all the annoyance to the patient; by three or four examinations a year, after the pessary has been once well fitted, the attendant will have complied with the requirements of supervision. Pregnancy took place in fourteen patients while wearing a pessary. When the womb had risen into the lower abdomen, which is usually between the fourth and fifth months, the pessary was removed.

THE PESSARY AND THE SUSPENSION OPERATIONS.

The pessary and these operations are not opposing but supplementary methods. Each has its distinct indication. The pessary is to be first used to support the replaced uterus; the operation is limited to cases in which the carefully fitted pessary has failed. The mistaken use of the pessary can be corrected: a wrong

operation cannot be undone. Delaying the operation involves neither hardship nor risk to the patient, but may redound to the credit of the surgeon. In view of the present imperfect status of suspension operations I submit the following

CONCLUSIONS.

1. A retroverted womb uncomplicated by disease should be replaced and supported by a pessary.

2. Retroversion complicated by diseased womb or impaired pelvic floor, the womb being movable, requires preliminary plastic operation to restore the normal condition before using a mechanical support.

3. Suspension operations should not be done simultaneously with the plastic, in face of the probability that a pessary can sustain the womb in position.

4. Retroversion complicated by aggravated prolapsus requires simultaneous plastic and suspension operations to effect a cure.

5. The treatment of retroversion with fixed womb is that for pelvic inflammation. Whenever the latter requires laparotomy or colpotomy, the retroversion becomes subject to such surgical treatment as may appear best suited to the particular case.

6. Retroversion, simple or complicated, in which mechanical support and plastic operation have failed to cure or to relieve, and in which the symptoms demand relief, constitutes a proper indication for a suspension operation.

722 WOODLAND AVENUE.

A REPORT OF TEN CASES OF CESAREAN SECTION PERFORMED AT ST. MICHAEL'S AND ST. BARNABAS' HOSPITALS OF NEWARK, N. J.

REPORTED BY

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CESAREAN sections are indicated whenever delivery by the normal passage is dangerous or impossible. With the advance

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of abdominal surgery its indications have been widely extended. The great success of to-day is no doubt due to our aseptic technique. Much of the mortality must depend upon the character of our cases. Neglected, exhausted, and septic cases will, as a matter of course, present a greater mortality than those where the operation has been done at our convenience and on a patient properly prepared. At the present time we must consider the following conditions as an indication for the operation. Extreme pelvic contractions in a relative sense; for a small child might be dragged through a pelvis through which it would be impossible to deliver a large one. Such contractions are usually due to rickets, osteomalacia, or arrest of development. Tumors in the pelvis growing from the bone or soft tissues are frequent indications. Scar tissue and artificial fixations of the uterus have of late caused serious obstacles to normal deliveries. We read much of fibromyoma producing obstruction. In our experience this is rare; we have but one case to report. A little patience will commonly allow the tumor to be pushed out of the pelvis, or else it will rise above the brim as the lower segment of the uterus retracts. We have frequently had occasion to observe this. An occasional indication for the operation will be puerperal convulsions and placenta previa. We have the choice of one of four operations—Sänger operation, ordinarily called the classical Cesarean section; the Fritsch operation, which simply means an incision transversely through the fundus of the uterus; the Porro operation; and a total extirpation.

In the septic cases we would probably do a Porro operation. In the case of new growth where the removal is indicated a total extirpation would be our choice. In the case where we can deliberately go to work a classical Cesarean section or the Fritsch operation must be our choice. It seems to us that the Fritsch operation is coming more and more into prominence for reasons which have been extensively published. At times we find that we must change the plan of operation and substitute a Porro operation. This will most frequently be the case where hemorrhage due to inertia supervenes.

We still find some difference of opinion as to the time selected for the operation. Most operators, it seems, would favor to select the time and not wait for the onset of labor; thus the great danger of sepsis is eliminated to a marked degree. The great objection to the operation previous to the onset of labor seems to

be the fear of hemorrhage, supposed to occur on account of imperfect contractions. The fear of sepsis due to the retention of lochia from a closed cervix is also spoken of. In all of our cases none of these objections proved true. There was good contraction of the uterus and the drainage through the cervical canal was perfect.

It is not my intention to go into the discussion of the many interesting points concerning Cesarean section, but rather to report the following cases, which in many respects are interesting and one or the other possibly unique.

CASE I.—*Carcinoma of cervix of advanced stage; labor at term; Cesarean section; child lived two days, mother four months; time, twenty-seven minutes; operation by Dr. Edward J. Ill.*

Mrs. J. F. was sent to St. Barnabas' Hospital by Dr. Lawrence, of Summit, N. J., on December 17, 1897. She was 45 years of age, had several children and always a normal labor. This time she had been in labor for four days and no progress was made in the endeavor to expel the fetus. Upon physical examination it was shown that she had extensive carcinoma of the cervix and vagina. The patient was much emaciated, the uterus hard and solid, *i.e.*, in clonic contraction. The abdomen was opened in the middle line, far enough to eventrate the corpus uteri and thus bring it outside of the abdomen. An incision into the anterior wall, in a sagittal direction, brought the operator directly into the placenta. The placenta was rapidly separated from the uterine wall, the membranes ruptured, and the child delivered by the feet. The placenta followed quickly and the uterus contracted satisfactorily. The uterine wound was closed with silk-worm-gut sutures, which were placed three-quarters of an inch apart and were buried deeply into the tissues, taking but little peritoneum and no mucosa in its grasp. Over this a continuous peritoneal suture of catgut was inserted. The abdomen was closed by a through-and-through silkworm-gut suture. Her recovery was uninterrupted; the child weighed five pounds and lived two days. The mother died four months later from the malignant disease.

CASE II.—*Dystocia produced by ventrofixation of the uterus of two years' standing; Cesarean section after two weeks of labor; mother recovered, child died in twenty-four hours; operator, Dr. Edward J. Ill.*

Mrs. E. S., aged 29 years, from Orange, N. J., was brought to

St. Barnabas' Hospital on account of her inability to give birth to her child. She had given birth to two children previously and to two miscarriages. Her first child was delivered with forceps, which resulted in extreme laceration of the cervix and perineum, retroflexed uterus, and partial prolapse. Two years ago she had a miscarriage and was curetted in February, 1897. In April Dr. Edward J. Ill repaired the cervix and perineum and did a ventrofixation. She became pregnant in February, 1898, having been in remarkably good health. Two weeks ago labor began and the membranes ruptured. The head did not descend, and an examination failed to detect the cervix, nor was a presenting part discovered. With the patient under chloroform anesthesia the cervix could be felt above the promontory of the sacrum. The uterus was firmly contracted, but all pains had ceased during the last eight hours. Her urine contained much albumin, hyaline and granular casts. It was evident the woman could not give birth to this child by the ordinary way, and a Cesarean section was performed. When the abdomen had been opened it was found that the fundus was fixed by adhesions to the lower part of the abdominal wall. Upon section of the adhesion the uterus immediately took its normal position, and through an incision into the anterior wall of the uterus a child of seven pounds and six ounces was delivered. The placenta was in the line of the incision and separated to a great extent. The child was not vigorous and died within twenty-four hours. Interrupted catgut sutures closed the deep portion of the uterine wound, while a superficial continuous suture of catgut closed the peritoneum. The mother suffered from uric-acid poisoning for some days and was delirious for the first twenty-four hours. Her urine still contained some albumin and a few casts when discharged. The writer is informed that she has given birth to a child normally since.

CASE III.—*Cesarean section twice in one year for deformed pelvis; abscess in the broad ligament with a communicating fistula in the vagina and a cicatricial vagina; recovery of mother and both children; operator, Dr. Charles L. Ill.*

Mrs. B. O'M., aged 37 years, nativity Ireland, had given birth to four children, all dead during or directly after birth. All were instrumental cases and sepsis followed every confinement. The operator delivered her of her fourth child at the seventh month with the hope of producing a live child, but it died at the

end of two weeks. He also delivered her at her second and third confinements. She was very desirous of a living child when she was admitted to St. Michael's Hospital on January 17, 1899. Physical examination revealed a fistula running from the left side of the cervix up into the broad ligament, and a great deal of cicatricial tissue. The measurements taken of this pelvis present the following odd figures:

Anterior superior spine.....	23	centimetres.
Crests of ilium.....	28	"
Trochanter	33	"
External conjugate.....	21	"
Diagonal "	7	"
True "	5	"

While the left linear terminalis is easily reached in its whole extent, the right linear terminalis is beyond the reach of the finger.

The operation was on January 21, 1899, two days before the expected termination of pregnancy. The uterine wound was sutured with heavy catgut, a great amount of deep tissue being grasped in each loop. A running suture of a finer material was used to close the peritoneum. The abdomen was closed by a through-and-through silver suture. Mother and child were discharged well on the twenty-first day. This was her first confinement free from fever. She again entered the hospital on December 28 of the same year, one week previous to her expected confinement. She again demanded a Cesarean section, but refused a castration or a section of the Fallopian tubes from religious motives. On December 30, 1899, an incision through the former scar was made. The uterus was again brought forward out of the abdominal cavity; an incision across the fundus from one horn of the uterus to the other admitted an easy delivery of the child and secundines. It was found that this incision was very convenient and very small after the uterus had contracted. Closure of the wound as in the former operation. The child weighed eight and three-quarter pounds. Mother and child discharged well on the twenty-second day.

In the reported operations compression of the broad ligaments was practised and the hemorrhage in every case was found rather excessive. This practice was omitted in this operation and the hemorrhage was found to be almost nothing.

In the cases to be described hereafter no manual compression of the broad ligaments and cervix was practised.

CASE IV.—*Cesarean section at term for a pelvis too small in all diameters, but not excessively so; operation by Dr. Edward J. Ill.*

Mrs. M. F., aged 28 years, born in Ireland, three children, no abortion, was sent to St. Michael's Hospital by Dr. V. Mravlag, of Elizabeth, N. J. All her children were born dead or died during delivery. There was no history of instrumental interference, but all children presented in abnormal position. The following were the measurements of her pelvis:

Oblique conjugate.....	7½ centimetres.
Anterior superior spine.....	24 “
Crests of ilium.....	22 “
Trochanter	30 “
External conjugate.....	19 “
Circumference	87 “

She had refused to have a premature delivery. Her doctor now requested a Cesarean section. There was nothing particular about the operation, except that the fundal incision was made as in the last case, and a continuous deep suture of catgut instead of an interrupted suture brought the tissue together. Mother and child discharged in twenty-five days well.

CASE V.—*Cesarean operation for convulsion at six and one-half months; child lived one hour; mother recovered; operated on by Dr. Edward J. Ill.*

Mrs. M. B., aged 22 years, English born. Patient was admitted to St. Barnabas' Hospital, having suffered from convulsions which continued uninterruptedly for six and one-half hours. The cervix was found to be very long and closed, so that any attempt to remove the child this way seemed out of the question. Her bladder contained no urine. The coma, cyanosis, and convulsions were so severe that it looked as if death was imminent. The only way by which this patient's life could be saved seemed to be by Cesarean section.

The classical section was performed; the uterine wound was closed by a deep and superficial continuous catgut suture; the abdominal wound was closed with silver wire. While on the operating table artificial respiration was resorted to, sulphate of strychnine was given hypodermatically, and 500 cubic centimetres of normal salt solution were injected under the breast.

During the next twenty-four hours 1,000 cubic centimetres of normal salt solution were injected under the skin. During this time she was also given 2 cubic centimetres of Woodward's tincture of veratrum viride. Chloroform was administered for the convulsions and the chest cupped for excessive edema of the lungs. After forty-eight hours she regained consciousness. Some urine was passed twelve hours after the operation. She was discharged May 28, twenty-two days after she was admitted, the urine being nearly normal. One can imagine the severity of the uremic poisoning from the fact that for the first seven days of the illness she was not conscious, or rather could not remember any of the circumstances attending her illness.

CASE VI.—*Cesarean section for obstructed labor due to a large fibromyoma developed in the cervix; operation by Dr. Edward J. Ill.*

Mrs. S. J. C., aged 36 years, had six children previously, the last child six years ago. She always had normal labor. She was sent to St. Barnabas' Hospital by Dr. G. R. Kent on September 13, 1900. She had been in labor for three days without any progress. On examination it was found that three-quarters of the posterior part of the pelvis was filled with a hard, solid tumor reaching a hand's breadth above the pubis. When under an anesthetic it was found impossible to push the tumor out of the pelvis. The membranes had ruptured. A typical Cesarean section was performed. Neither tumor nor the uterus was removed because of the great fixation of the tumor in the pelvis. Both mother and child were discharged well in twenty-seven days and remain well to this day.

CASE VII.—*Cesarean section after futile attempts to deliver per viam naturalem; death of mother and child; operator, Dr. Emil Guenther.*

Mrs. A. B., aged 31 years, was admitted to St. Barnabas' Hospital for delivery shortly before the onset of labor. After twenty-four hours the patient showed signs of sepsis. The forceps proved of no avail. Version made things no better. By this time her temperature was 102° F. and her pulse was 140. Cesarean section was the only available means. It was done quickly and carefully. The method of operation was the same as those described heretofore. The child was dead previous to the operation and the mother died within thirty-six hours of sepsis.

CASE VIII.—*Cesarean section following ventrofixation of the uterus and repaired cervix; operation by Dr. Edward J. Ill.*

Mrs. K. C., born in Canada, aged 25 years, was seen in consultation with Dr. S. E. Robertson for extreme shock during labor on January 25, 1901. The patient presented the following history: She had three children and no abortion. The patient was in poor health until five years ago, when she had her cervix and perineum repaired and a ventrofixation of the uterus done. After the operation she did not improve much, complaining of constant headaches and hysterical spells. Five days previous to the doctor's visit she had a sudden pain in the abdomen, as if something had given way, and had labor pains on and off. Dr. Robertson saw her on January 25, when she had pains regularly, but not severe. There was no discharge and the patient felt well. The doctor could not feel any cervix and decided to wait for further developments. After returning in a few hours he found the patient in collapse, extremely pale, and in great pain. The operator saw her at eight P.M. and noticed the following condition: A well-nourished woman of extreme pallor with a pulse scarcely perceptible. The distension of the abdomen was immense, the patient lying on her right side. The abdomen was found to be very tense and tender, with a scar three inches in length in the suprapubic region. No cervix could be discovered in the vagina nor could Douglas' cul-de-sac be reached. There was not the slightest bloody discharge in the vagina nor could any presenting part be made out. The diagnosis was dystocia due to ventrofixation and closure of the cervix; hemorrhage into the uterine cavity due to separation of the placenta. The severity of the case was recognized by her physician and the operation of Cesarean section was advised. The possibility of extirpation of the uterus was noted. Dr. Robertson immediately injected 500 cubic centimetres of normal salt solution under the skin, while the operator gave orders at St. Michael's Hospital for the operation. The doctor very kindly accompanied her to the hospital in an ambulance, giving her frequent doses of strychnine and brandy on the way. On arrival at the hospital it was shown that the patient had not lost any ground, nevertheless 1,000 cubic centimetres of normal salt solution were injected under the breast during the operation. At the operation the following very interesting condition was discovered: The upper portion of the posterior wall of the uterus had been fastened to the abdominal wall, and as the uterus grew out of the

pelvis it twisted half upon itself, so that the upper posterior portion of the fundus presented in the wound. Upon separation of the adhesion the uterus regained its normal position as soon as it was lifted out of the abdominal cavity. An incision through the anterior wall of the uterus proved the diagnosis. There was a complete separation of the placenta. The amount of blood between the uterus and the membranes was something to frighten even the most courageous. The uterus would not contract. It lay over the abdomen like a wet rag. A serre-neud was quickly placed around the upper portion of the cervix. The stump was fastened into the lower end of the wound. The abdomen was filled with a litre of normal salt solution and closed by interrupted silkworm-gut sutures. The shock of the operation was almost nothing, the patient being in as good condition as, if not better than, when first seen by the operator. The child was dead, but the mother made an uneventful recovery. The serre-neud was used for this case because a rapid operation was necessary. It lasted only twenty minutes. The woman was discharged well on the forty-fourth day, but still very pale.

CASE IX.—*Cesarean section for obstruction caused by ventrofixation; mother and child discharged well; operation by Dr. Charles L. Ill.*

Mrs. K. S., a German, aged 42 years, was admitted to St. Barnabas' Hospital July 11, 1901, while in labor. She presented the following history: Eighteen months previous she had two sets of operations for complete prolapse of the uterus with cystocele and rectocele. There had been an amputation of the cervix and an anterior and posterior colporrhaphy and a ventrofixation. No artificial support had done her any good, and as she was a hard-working woman, the wife of a baker, and had had no children for ten years previously, Dr. Edward J. Ill performed the above operations. She soon became pregnant and was carefully observed during the last two months of her pregnancy. The child was known to be in a transverse position and the cervix high up in the pelvis. After she had been in labor for two days in the hospital and no progress made, a typical Cesarean section was done. The incision through the uterus was made a little to the left and a live child extracted. An interrupted catgut suture closed the uterus and a through-and-through silkworm-gut suture closed the abdominal wound. Mother and child discharged on the twenty-third day, well.

In reviewing these cases the writer draws the following deductions:

1. Ventrofixation must be an operation of the past in all patients during the child-bearing period.
2. Cesarean section should be done more frequently than heretofore, and in all cases where the child's life is in imminent danger and the mother's future health at stake.
3. Early cases of uremic convulsions with a tightly closed cervix, especially in primiparæ, afford a better chance by Cesarean section than by any other means.
4. The fundal incision has the advantage of a smaller wound and is less likely to form adhesions to the anterior of the abdomen.
5. Absolutely absorbable material should be used in closing up the uterine wound.
6. Operations previous to the beginning of labor are as successful as, if not more so than, done after the beginning of labor.
7. Quickness of operation and perfect asepsis are greatly to be desired in all cases.

188 CLINTON AVENUE.

DISEASES AND INJURIES OF THE CERVIX UTERI AND THEIR TREATMENT.¹

BY

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THE present decade marks a period of unusual progress in gynecology. Within the memory of many of us, section of the abdomen was regarded as an operation of the most hazardous nature, and never undertaken except for large cystomata; now we feel free to operate for all lesions of abdominal and pelvic viscera. The gynecologist has also interested himself in the pathology of the uterus and its adnexa, and, as in every research undertaken by man, the deeper and more accurate the study the

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

more it unfolds to him. This applies equally well to cervical pathology, to which my essay more particularly refers.

Some writers refer to the cervix in a most indifferent way, as though it could scarcely rise to the dignity of a discussion in the realm of woman's diseases—perhaps because they are not so much interested in delicate plastic work as in heroic work; while others freely acknowledge the delicate nerve structure of the cervix and its intimate connection with the sympathetic system, although it may be physiologically more active in some women than in others. In the earlier days of Emmet and Sims it was the general impression among gynecologists that the repair of injuries due to parturition was about all the attention to which the cervix was entitled. By degrees we have learned that it is the *entrepôt* to the generative system of a great proportion of the graver ailments to which the female is subjected, either by injury or by contagious or infectious diseases, and that the sequelæ are found enumerated in the multiform nervous reflexes which slowly and stealthily fasten themselves on the unsuspecting patient.

I do not base my statement on a few chance cases, but on a study of hundreds of cases and running over a long period of time devoted to special work. Nor do I undertake to assume that *all* the reflex nervous conditions found in gynecological practice take their origin in the cervix, for we know the contrary to be the fact; but the absolute demonstration that the condition of the cervix is often the initial starting point of grave disturbance in these cases leads to this discussion.

If the cervix is not the objective point for our interference, why is it that so large a proportion of these grave cases return to good health after operations properly performed?

The evolution of cervical troubles takes place through two main causes: first, those incidental to carelessness or disease in earlier life, such as improper care and exposure at a menstrual period, or through the effects of the exanthemata—scarlet fever in particular, which often expends some of its poisonous effects on the genito-urinary tract, including the uterus as well; second, those causes which are incidental to married life, such as injuries during parturition and infectious contact. Too little attention has been given to one fact, that the poison of scarlet fever often attacks the mucous surfaces of the vagina and cervix, as it does other mucous surfaces in the body, and that, being

unnoticed and uncared for, it leaves a permanent catarrhal condition of uterus and vagina, the effects of which are unfolded later when menstrual troubles begin to arise, or in early married life. These results may, and probably do, cause many of the cases of dysmenorrhea, chronic endometritis, and tubal disease seen in unmarried girls. It is also a frequent cause of diseased and hypertrophied cervixes and Nabothian glands, causing the hard, unyielding, and undilatable cervix which lacerates during parturition. Complete stenosis of the cervix with retention of the menstrual fluid in young girls is probably more frequently caused in this way than in any other. The same may be said of atresia vaginae, and also of certain so-called cases of double vaginae, in which a septum divides the canal a greater portion of its length; also of imperforate hymen. Probably many of these are caused by the juxtaposition of inflamed and infected surfaces.

Lacerations of the cervix are exceedingly frequent; some are slight, heal readily, and leave no after-trouble; others are deep, beginning even at the internal os, occasionally causing alarming hemorrhage from the circular artery, and leaving the open vessels and lymphatics exposed to septic infection. This infection may involve the whole uterus—may extend to the broad ligaments—may be fatal; but if these cases of sepsis go on to convalescence, there remains not only the serious condition of the cervix, but also a subinvolution of the uterus, the precursor often of displacements with varied pelvic and vesical distress.

Our patients frequently endure these discomforts either from modesty or from the belief that it is woman's lot, so that the gynecologist is not consulted until, broken down in general health and suffering from the reflex nervous conditions incidental thereto, they appeal for help. If we consider the average length of time before this class of cases presents itself for treatment, we find that in cities it is over three years and in the country from four to five years; in many cases three times such a period of time elapses before a rational method of relief is obtained, thus giving the injury time to work its worst on the normal structure.

In some constitutions disease attacks an injured part more readily than in others; consequently there can be no limit of time when the injured cervix may not be invaded with permanent disease, and when once this disease, whatever its nature, has established itself in the cervix, we are often surprised at the

multiplicity and gravity of its reflexes. It is a source of additional surprise that in so large a proportion of these graver cases of reflex trouble the patients themselves are ignorant of the fact that the initial cause is pelvic.

I refer now especially to cases of long standing, where the normal structure has become pathological in character, both superficial and deep; where the glandular structure, the mucosa, the deep follicles, and especially the area adjacent to cicatricial growths have become involved to such an extent as to render improbable any return to their proper or normal function. Such cases might be cured by Emmet's operation, if treated early enough: that is to say, if the operation were performed before extensive, deep-seated, degenerative changes had taken place in the cervix. It is conceded that certain of this class of cases would be benefited by Emmet's operation: still, after the repair, much diseased structure would be left, as the whole cervix is then involved, and this would be in itself sufficient to keep up much of the former pain and nervous distress. Those who have operated for cervical disease for many years will doubtless bear in mind cases where the work of repair had from its apparent perfection seemed to be successful, but weeks and months brought little or no comfort to their patients. We know that it is absolutely necessary to success in trachelorrhaphy to remove all the cicatricial tissue before the sides of the tear are reformed and coaptated: this excised tissue is pathological. Then, in cases of long standing and with more serious and extensive pathological conditions, why should we not remove all that is diseased? Why repair the laceration only? There is no more danger in one operation than in the other. I can say that I have never had the slightest unpleasant complication following an amputation of the cervix: but I can hardly speak so well regarding some of my cases of trachelorrhaphy. In some of my cases the subinvolution was so pronounced as to simulate tumors. I have found a more positive reduction of such conditions to follow amputation of the cervix than occurred after simple repair; so also has much pelvic tenderness been removed, due probably to overweighted ligaments or sympathetic congestions.

A study of the neurological conditions which are sequential to diseases and injuries of the cervix is both necessary and instructive. They vary according to the temperament of the patient and the gravity of the disease. The worst forms are found in the attacks

of gastralgia, angina pectoris, basic headache, cephalalgia, insomnia, and mental depression with marked suicidal tendencies. It may be cited that grave nervous complications often accompany diseased conditions of the ovaries. This is true; nevertheless, such conditions are more likely to be attended with local pain than remote, and less likely to experience the overwhelming nervous conditions referred to than in cases of purely cervical trouble. Hegar speaks of these reflex symptoms or hysteroneuroses as mainly due to the ovary; so does Tilt. Schröder goes so far as to advise the removal of the ovaries for relief of urgent symptoms, even, as he states, if disease of the ovarian tissue cannot be detected. In reply Engelmann says: "The uterus he (Schröder) ignores, and yet the great mass of cases which I have described as hysteroneuroses, and proved to be such by their disappearance upon treatment of the uterine disease, were mostly referable to the uterus and very few to the ovaries."

I most certainly indorse Dr. Engelmann's position here; and while years have elapsed since he so wrote, time and the observations of many of our ablest gynecologists have demonstrated its truth. It is not the ovary but the uterus itself which is the *fons et origo* of the trouble. He says further: "Undoubtedly these phenomena are determined mainly by the influence of the ganglionic nervous system; to the uterine ganglia an irritation of the terminal fibres is communicated, and thus the link is established by which the impulse can be directed toward any of the functional organs of the body, all organs of nutritive life being supplied with ganglia or a ganglionic plexus. The largest is in the pit of the stomach—the solar plexus—hence gastric neuroses are the most common, distension of the stomach, nausea, faintness, perverted appetite, etc. The vagus, itself an important tract, is in direct connection with the ganglionic centres, and carries the uterine impulse to the heart, lungs, and stomach; and no reflex, next to the gastric, is more common than the cardiac—palpitation, pain, and all the symptoms of heart disease. Few are more annoying than the bronchial, especially the asthmatic attacks. The same nerve, so intimately connected with the ganglionic centres, is the bridge which connects this system to the spinal and cerebral centres, and admits of the direct transmission of the uterine impulse to the brain. Hence the nerve pains and the mental phenomena." The cause may be a hard cicatrix pinching nerve terminals, or hyperplasia from within, or ex-

posture of the nerve in an erosion, or by a generally indurated cervical condition. The nerve fibres of the ovary are compressed in much the same way, but it is difficult to trace a reflex symptom positively to ovarian origin. It has been my good fortune to be able to demonstrate, in at least four cases, that lacerations of the cervix alone were the direct and only apparent cause for the dementia of the patients, unless I should add to this the generally congested and irritated condition of the uterus itself; for trachelorrhaphy or amputation of the cervix alone was performed and all of the cases recovered.

It should be noted here that in many of the long-standing and serious cases with general involvement of the uterine tissues it is not uncommon to find the internal os hypersensitive, and that the most careful touch with the sound creates such a spasm of pain as to compel cessation of the treatment for the time being. I have had patients insist that the sound, thus used, had brought on angina or the basic headache, as well as nausea. This shows certainly that a filament of nerve, exposed in the lower segment of the uterus under conditions of chronic inflammation, may be a constant factor in reflex irritations. For this reason I never operate upon a cervix now unless I first curette thoroughly and particularly around the internal os, rather taking pains to eliminate all that chronically inflamed mucosa. It certainly helps to cut clear some of the sensitive nerves as well.

Not infrequently a patient presents herself for examination where the cervix at first sight appears quite normal, but is sensitive to pressure, especially if effort is made to press it forward on its axis, or on the introduction of the sound. These are old lacerations with evidences covered up by a smooth mucosa, but injury just as great oftentimes and needing just as careful operative work as the enlarged cervix with ectropion. Some of the worst lacerations are at the internal os and have comparatively slight visible demonstration of injury. So with the small microcystic ovary; it is almost impossible to diagnose this condition without opening the abdomen. In either case the patient might be declared free from pelvic difficulties, while at the same time she was almost frantic from really grave pelvic disorders. All of which proves how great care is necessary in examining our patients and **establishing a diagnosis.**

It is a mooted question what particular part of the generative apparatus in the female is responsible for the most of the seri-

ous reflexes, whether the ovaries or the uterus itself. I believe it possible for the ovaries to excite many grave reflex conditions; still, we are constantly meeting every degree of ovarian disease without any very marked neurotic ailments, aside from those caused by the physical conditions. Further, in ovarian disease we always expect local pain as a symptom. On the contrary, in the case of the uterus patients do not generally complain of local pain, except perhaps the backache; but the reflexes are almost invariably present in one form or another. If it is simple endometritis only, and the fundus has become involved, there will certainly be present the gastric troubles and headaches so much complained of, and it is when the cervix has become affected, either by disease or long-standing injury, that we seem to find our cases of most constant and serious reflex trouble.

The belief has for years existed that many women have been confined in insane hospitals suffering from ailments that should and could have been corrected by proper gynecologic skill. The condemnatory attitude of the neurologists toward this idea has been very pronounced, and the State has been slow to admit the propriety of the appointment of an experienced gynecologist with power to examine and report, much less to operate on selected cases. I do not believe that all insane women are so because of pelvic disease. I know there are other potent causes for insanity, as, for instance, environment, impoverished blood, lactation, uremia, etc. However, in a great many instances the gynecologist has been able to demonstrate that the insanity of a patient had been directly caused by pelvic disease. If only five per cent of insane women can be cured by operative procedure for pelvic troubles (and reports from insane hospitals, not only in this country but abroad, indicate a much larger proportion), then the authorities in control of such places of detention owe it to humanity that every opportunity be afforded the insane women for a cure.

However, I wish to put myself on record as opposed to indiscriminate operating without well-defined cause. I think few in the profession would follow Schröder in removing the ovaries when no disease of them could be found. I believe that the moral and scientific influence of gynecologists, who alone are the best judges of cause and effect in these cases, should be pressed continually upon the legislative and governing bodies to urge frequent, complete, and satisfactory examination of every woman

before she is doomed to separation from her family and detention in a madhouse.

Beyond the long line of local and general ailments induced by lacerations of the cervix, and which are so-called benign in character, we are confronted with the possibilities of malignant manifestations at the immediate locality of the injury. The relation between lacerations of the cervix uteri and malignant disease is forcibly demonstrated as cause and effect. Cancer in women appears far more frequently in the uterus than in other parts of the body, and appears to take its start from that portion of the uterus most liable to injury—the cervix. Therefore the laceration should always be repaired reasonably early, and the best results are most likely to be attained when the patient has had time to recoup her strength, and involution has proceeded far enough to show accurately the lines of tear. Immediate repair of these lacerations is not always satisfactory, owing to the swollen and contused surfaces presenting, and is likely to be followed by lack of symmetry of the canal with partial occlusion. However, if the injury should involve the circular artery and alarming hemorrhage occur, immediate repair would be demanded.

There is little that is new to be said regarding the treatment of these injuries. In all cases a preliminary treatment of rest, hot vaginal douching, tampons of ichthyol and boroglyceride, and saline laxatives, is essential. Local congestions are modified thereby, and it is a valuable adjuvant to any pelvic operative work. Dilatation and curettage, if indicated, should always precede attempts at repair. The ordinary trachelo-plastic operation is one of the safest of all operations when performed under strict asepsis. But the uterus should always be handled delicately, and never dragged down harshly so as to unduly stretch its ligaments and supports. If there are adhesions they should be broken up manually under anesthesia, if possible, or under direct inspection after section. The presence of acute pelvic inflammation of the periuterine structures precludes a trachelo-plastic operation until the complete subsidence of all inflammatory symptoms. It is a wise rule never to perform plastic work on the cervix in the presence of such inflammation.

Amputation of the cervix was formerly performed only for malignant disease. I have no doubt that it had its successes as well as its failures. My fellow-townsmen, Dr. John Byrne, with

his great skill and ingenuity essayed largely in this direction with the galvano-cautery. I have three cases on record where I myself removed the cervix with the galvano-cautery for malignant disease. One, of epithelioma, lived eight years after the operation and died of other disease; one, of carcinoma, lived eleven years after the operation and died of carcinoma of the breast with involvement of lung (malignant); and the third I report as follows: In September, 1887, I saw Mrs. M. S., IV-para, aged 36. She had what was apparently a well-marked cancerous growth, limited to the cervix. On September 28, 1887, the entire cervix was removed by galvano-cautery, and the tumor, when subsequently examined by a competent pathologist, proved to be epithelioma. On March 7, 1889—that is to say, eighteen months after complete amputation of the portio vaginalis by the galvano-cautery—Mrs. S. gave birth to a large, healthy child, and she is now, at the age of 41, in the enjoyment of good health. I quote this from a paper on this subject read by me before the Brooklyn Gynecological Society in 1893.

I simply refer to these cases to show that there were some absolute successes under Dr. Byrne's method of operating—more, probably, under his immeasurably skilled hand than under that of any other or all others. However, I rarely use the galvano-cautery now, and never for malignant disease of the uterus, because I believe it to be vastly safer, if any portion whatever of the uterus is involved in malignant disease and the case is operable under any condition, to perform a panhysterectomy. But there are many cases also of old and long-standing cervical disease which are not malignant in character, but which, nevertheless, are most satisfactorily relieved by amputation. These are cases where the normal tissue has been so fully invaded by disease as to promise small results from simple trachelorrhaphy. In these cases I always amputate with the scissors. Amputation has this special advantage: it comes nearer to clearing the neurological atmosphere of the patient of all hystero-neuroses by cutting off the supply of irritant causes focussed in the cervix. It promotes involution far more rapidly than trachelorrhaphy, thus relieving tension from overweighted ligaments and pressure on surrounding parts producing congestion.

To conclude:

1. In cases where the injury is recent and the constitution of the patient is so good that no extensive degenerations have oc-

curred—in short, where there is a reasonable probability of being able to restore the cervix to a normal condition, this should be done by Emmet's operation.

2. In old cases where extensive alterations have taken place, as proved by direct examination, and not less certainly by the unmistakable and intractable reflexes that attend such alterations, the unbearable headaches usually referred to the vertex and the nuchal region, the gastric disturbances, and the endless procession of psychic, neurotic, motor, cardiac, and respiratory aberrations so familiar to every experienced physician—in such cases trachelorrhaphy is out of the question. To remove all the diseased tissues, and that alone, would call for an unattainable amount of nicety of dissection; and supposing the dissection accomplished, the sewing up of what was left might result in a most interesting thing “of shreds and patches,” but it would not be a cervix uteri—which is the only legitimate object of trachelorrhaphy. In such cases amputation is as effective, clinically, as it is logical in theory.

3. The operation is not more dangerous than trachelorrhaphy.

4. It is not likely to be followed by stenosis of the canal.

5. There is nothing in the operation that seriously militates against conception or a normal gestation and delivery.

215 SCHERMERHORN STREET.

PERSONAL EXPERIENCE WITH UTERINE FIBROMYOMATA.¹

BY

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(With three illustrations.)

I CAN expect to say little if anything new upon a subject that has been given as much attention as fibromyomata of the uterus. Yet I think that two of the cases that are briefly reported have more than a passing interest. It is not within the scope of this paper to attempt either to give the cause of these neoplasms, to describe the several varieties, or to enumerate the symptoms ac-

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

companying each variety. All that is attempted is a brief description of the few cases mentioned. It was not so many years ago that nearly every practitioner thought that a uterine fibroid was a harmless growth and the best thing to do for it was to let it alone, unless hemorrhage was troublesome, then ergot or various other styptics were to be used. I am afraid that this is still the opinion of too large a proportion of physicians. When I first began to treat these neoplasms ergot was used hypodermatically to dispel the growths, and with others I used it quite faithfully in several cases without any benefit, except a few times it checked the excessive flow. Then electricity came into use, chiefly through the advocacy of Apostoli, and that was tried by many, the writer being among the number. I visited Apostoli, saw his methods and his results. Although I was not as enthusiastic in its use after visiting his clinic, yet I continued to use it, with the result of checking the hemorrhages in some cases, of occasionally checking the growth of the tumor for the time being, and of reducing the size of the growth in two cases. In one of the latter the benefit was permanent; in the others the patients became as bad or even worse after the electricity was discontinued, and most of them have since been operated upon. I am not aware that I ever did any harm with the electrical treatment, except to postpone an operation that should have been done earlier, because it would then have been easier for the operator and safer for the patients. None of those whom I operated upon after the use of electricity died as the result of the operation. One, however, upon whom I had used electricity died as the result of the removal of the growth by a most competent surgeon. I am sure her chance of recovery when I first saw her would have been much better, but she would not listen to any suggestion of an operation until her condition became serious. I think the reason I did no more harm with the electrical treatment was because I examined every case very carefully and never used it on a soft or very rapidly growing tumor nor on a superitonal one. Possibly, if used on the latter, it would do no harm, but it certainly would do no good. In the two former varieties it is harmful and dangerous and should never be used.

I believe that in all cases of uterine fibroids a very careful examination of the pelvic cavity should be made. The bowels and bladder should be empty, and a thorough examination made with one or more fingers of one hand in the vagina or rectum. The

examination by the rectum should never be omitted, although it frequently is. An anesthetic should be given, if necessary. A careful history of the condition of the patient for several years past should be obtained and the changes in the growth carefully noted. I am well aware that the above advice is entirely unnecessary as far as the members of this Association are concerned, but many general practitioners make a superficial examination and then give a prognosis that is not warranted by the patient's condition.

In years past I have curetted the fibroid uterus several times for menorrhagia, usually when the neoplasm was of the interstitial variety. In a few cases where the growth was not interstitial, but was hard, dense, and firm, the hemorrhage was controlled for a time and no bad results followed; yet I consider it a dangerous procedure, fully as dangerous as hysterectomy.

In one case of curettage, that of an unmarried woman 35 years old, who had always been in good health and had never experienced any trouble from the tumor except the gradually increasing hemorrhage at each monthly period, the growth, which was a small interstitial one, entirely disappeared within five or six months after the curetting. I also have seen one larger than this, of the intramural variety, disappear spontaneously. The tubes and ovaries have been removed three times by me for the relief of these growths. In two cases the relief was not marked, and in the third case the patient died from septic peritonitis, although the operation was an easy one and every effort to secure cleanliness was made. I never expect to resort to this operation again for the relief of any symptoms connected with these growths. One case in which I did a hysterectomy several years ago had a large pus tube on the left side. The tumor was a large one, weighing thirty-five pounds, and had grown quite rapidly for the last ten years. The patient was a nun, 42 years old, and had experienced pelvic pain, leucorrhea, menorrhagia, constipation, and more or less vesical irritation for twenty years past. During the two years before operation all the symptoms had increased and the tumor was growing much more rapidly than formerly. This is the only case in which I have ever found a pus tube of any size complicating a fibroid. I have seen seven cases of pregnancy complicated by fibroids large enough and situated so as to give trouble of themselves. In five cases miscarriages occurred spontaneously; in one a miscarriage was brought on; in the remaining case the uterus was removed.

In one case the woman went to six and one-half months before miscarriage occurred. The child was well formed, but thin and poorly nourished. The tumor was said to have been firm and solid, but during pregnancy it grew rapidly and became fibrocystic, with but little fibroid tissue except at the lower and posterior portion of the growth, as was learned a month or so after the miscarriage, when the tumor was successfully removed. I first saw this case two weeks before the expulsion of the fetus, and it was not an easy matter to tell whether or not pregnancy existed. The patient's physician, a very competent man, would not believe it did exist until labor pains came on. The pains were feeble and the labor prolonged. It was the patient's first and only pregnancy.

In the other cases miscarriage occurred earlier and with no especially unpleasant symptoms. All the cases except one I was able to keep under observation, and in none of them did the tumor atrophy or become absorbed. In two of them I did hysterectomy later and the patients recovered.

Mrs. C., who was four and one-half months pregnant and upon whom I did a hysterectomy, was born in Sweden, 38 years old; menstruated first at 15, always regular and flow normal; married at the age of 24; had one child two years later, and one miscarriage three years after the birth of child. Always well until the past six months, when she began to feel poorly, said there was a sense of fulness in the pelvis, bowels constipated, and slight vesical disturbance. The symptoms had increased rapidly for the past two or three months, yet she had not consulted a physician until, about a week before I saw her, she called upon Dr. John M. Brooks, of Jamestown, N. Y., who sent her to me. I found the pelvis almost completely filled with a dense, firm, globular mass extending down and within about two and one-half inches of the external parts posteriorly and resting on the pubis anteriorly. It could not be pushed upward nor moved to any extent. The os uteri could not be felt. It was difficult to pass a finger up the rectum behind the growth. I was unable to feel the motion of the child or detect the sounds of the fetal heart, yet a diagnosis of a fibroid in the lower portion of the uterus complicated by pregnancy was made. Very active cathartics were necessary to move the bowels. It was decided to remove the growth, and an abdominal hysterectomy was done. No serious difficulty was encountered, except the profuse bleeding

toward the close of the operation. It was difficult to ligate the uterine arteries *in situ*, and every little capillary was very much enlarged and bled profusely. When caught by the forceps the blades would tear the tissues and the bleeding would be greater than from the original source. Finally I removed the growth as quickly as possible, and my assistant, Dr. Carro J. Cumming, grasped the larger bleeding vessels in her fingers. They were quickly ligated and the bleeding stopped. The patient made an uneventful recovery, and has been in good health ever since, now two years. Photographs of the growth show the condition more clearly, perhaps, than does the description.

Another case—and this is the last one which I shall report—occurred in a woman whom I had known for several years, but never attended professionally until recently. Miss C., aged 69



FIG. 1.—Posterior view.



FIG. 2.—Lateral view.

Pregnant uterus with fibroid in lower segment.

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years, began to menstruate at 14 years of age; always regular and flow normal, except quite painful the first day, gradually diminishing the second day, when the pain usually ceased, although the flow lasted two or three days longer. Menopause occurred at the age of 52. After that, about once in two or three years she would flow three or four days, sometimes profusely if over-fatigued or suffering from any great mental strain. Aside from this her health was good. Four years ago, after having passed through a great mental strain for several months, she had an attack of severe pain in her head, followed in a few days by almost complete paralysis of the right side of the body and complete anesthesia of that side. During this time she was unable to recognize the different members of her family, although

the power of speech was not entirely gone. This condition lasted two weeks, when the patient began slowly to improve. It was, however, several weeks before she could walk across the room or before her mind regained its normal condition. At this time no growth was discovered in the pelvis; none was thought of or looked for by the attending physicians, as there were no symptoms indicating any pelvic trouble except the occasional flow. The patient finally partially recovered her health. About two years after this attack she flowed quite profusely for five or six days, and soon after, upon examination, I found a nodular, irregular enlargement of the uterus about the size of the fetal head, extending further to the right than to the left side. As it did not give much trouble, it was thought best to let it alone, the patient's general health being poor. Neither her health nor the

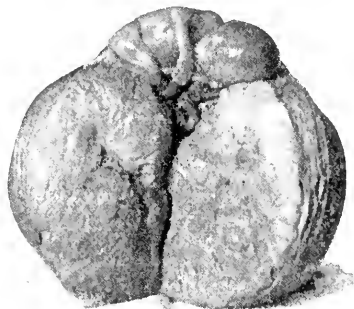


FIG 3.—Pregnant uterus with fibroid in lower segment. Tumor and uterus incised.

growth changed much, although upon two occasions she lost a little blood, flowing slightly three or four days each time.

In August, 1900, she had another attack similar to the one three years previously, and it came on in the same manner. At first the patient had pain in the head for several days, gradually growing worse, until it was very severe; could only speak in monosyllables; failed to recognize her friends, but was not paralyzed as before, nor was there anesthesia of any part of the body. As previously, about two weeks elapsed before she began to recognize her friends. Her improvement was gradual, but slower than after previous attack. After this illness the uterine fibroid began to grow more rapidly, until now it has reached an enormous size. The patient can walk but little because she is weak and anemic. She can sit down, but cannot sit upright; she

has to lean back against something, on account of the large size of the growth in front. As far as could be discovered the growth was as hard and firm five months ago as ever, but since then it has been getting softer, until at the present time it has become quite cystic. Six weeks ago, while sitting in a chair and feeling as well as she had in some time, she suddenly felt dizzy and fell to the floor. She did not lose consciousness or fail to recognize her family. She was, however, confined to her bed most of the time for a month: some headache, but more of a fulness and pressure in the head, accompanied with dizziness and poor appetite, but no rise in either temperature or pulse. Upon the two previous occasions there was a rise of temperature up to 101° F. and the pulse 96 during the height of the attacks. She is not as well now as before the fall.

It has been a question if some particles of the disintegrating tumor have not been carried through the circulation to the brain, causing a septic infection or obstructing the circulation in a portion of the brain and producing these conditions. I am inclined to think so, because in no other way can I account for these attacks. At present her existence is much like a living death, if there can be such a condition, yet it is doubtful if she could survive an operation.

Doubtless an operation should have been resorted to when I first saw the patient; yet her general health at the time was such that it did not seem that she could survive one. Yet if the trouble in her head were in any way due to the fibroid the removal would give her a chance for improvement and the only chance she could have. The same reasoning holds good now, and should the patient become as well as before the last relapse I think an operation should be attempted.

From my experience with the above cases and others similar I conclude that the use of ergot or hydrastis sometimes helps to control the excessive flow. Oftener neither one alone nor both combined have any effect whatever. I have had better results in checking the hemorrhage with stypticin given freely than with any other drug. Just how it acts I do not pretend to say. Although I have employed both thyroid extract and the desiccated mammary gland, not enough benefit was derived to compensate for the danger attending their use.

In fact, if fibroids are troublesome I have never obtained

much if any benefit from the use of drugs except to relieve the complications which occur.

Although I have used the curette with fair success in checking hemorrhages, yet I consider it a dangerous remedy. It will in most cases check the hemorrhage, at least temporarily, but it may depress too far the nutrition of the tumor and open up a way by which organisms may find access to its substance, with all the increased risks which this implies.

Electricity, if properly used, is doubtless a safe remedy, but of little value except to check hemorrhage. And when hemorrhage needs any treatment at all it needs more than palliative treatment.

When pregnancy occurs, and a large, rapidly growing fibroid is situated below the fetus in the pelvis and nearly filling that cavity, I know of nothing to do except to perform hysterectomy.

I believe that fibromyomata, although considered benign in contrast to malignant growths such as carcinoma, are by no means harmless, but expose the patient to great and increasing risk—frequently risk of life, partly due to their own inherent conditions and partly to the complications which may arise. All cases of fibroids should be carefully watched; if they are not giving any trouble nor increasing in size, let them alone, but continue to keep the patient under observation. If they do occasion trouble to any extent, which is gradually getting worse or if the growth is increasing in size, then the proper thing to do is to remove it before dangerous complications occur. If there be adhesions or necrosis of the tumor or pyosalpinx, then the danger of the operation is greatly increased.

If cardiac disease or hydronephrosis result as a complication, the removal of the tumor does not relieve these conditions. Waiting for the menopause to relieve the diseased condition is often like holding out false hopes to the patient, as the trouble may become worse than before, or it may develop after that period, as shown by the last case mentioned.

If any treatment is necessary and the patient is in suitable condition, then a radical operation should be done. There is no excuse whatever for palliative or temporizing treatment at the present day.

405 FRANKLIN STREET.

SOME RARE AND ODD CASES AND EXPERIENCES IN PELVIC AND ABDOMINAL SURGERY; THE LESSONS THEY TEACH.¹

BY

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(With two illustrations.)

THE accidents or failures following surgical operations are seldom paraded before medical societies. It is only human to forget our failures and our mistakes and dwell upon our successes. We all like flattery better than we do criticism. It is well that we should parade our successes, for it is well known how much more the laity parade our failures than they do our successes.

But among ourselves it is well to know our failures as well as our successes. I report some cases for their rarity, others for their novelty, and still others for the mistakes which they show. By our mistakes do we learn to avoid them, sometimes.

WOUNDED URETERS.

CASE I.—Mrs. W. was operated at the Buffalo Woman's Hospital for a uterine fibroid the size of a full-term pregnancy. The tumor was of rapid growth, she having noticed it about one year before when just rising above the pelvic brim. It had grown in the lower uterine segment to so great an extent as to completely choke the pelvis. It was therefore one difficult to remove. In the course of its removal a section of the right ureter about one inch long was taken with the tumor. The cervix was also taken out. A uretero-ureteral anastomosis was made, passing the proximal into the distal end. with catgut sutures. In order to provide for drainage should the anastomosis fail, the cut end of the vagina was not entirely closed. Such is my custom in all total extirpations of the uterus, to leave a little chink in the up-

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

per end of the vagina as a safety valve for any ooze that may need to come away. In three days urine began to come through the vagina and continued to run for about eight months. She was importuned to have another operation, but she was obdurate. She hoped that she would get along without it. I assured her that she would never get well till she submitted. Suddenly the urine ceased to flow, an agonizing pain developed in her right kidney, and she thought that she must submit. Examination showed a large, tender, fluctuating tumor, an acute hydronephrosis. Before anything operative was done, however, the pain and tumor began to disappear, the urine did not pass into the vagina but into the bladder, and from that day till this, now over five years, she has been perfectly well.

CASE II.—Mrs. M. had a total extirpation of the uterus at the Buffalo Woman's Hospital for a lymphadenoma of the uterus. I do not think that the left ureter was cut across or entirely occluded by suture, but I do think that it must have been partially occluded by a suture. For a week after operation she had pain over the left kidney and was excessively tender on that side. She was very fleshy, and being so tender and withal nervous, no other bad symptoms presenting, I waited to see what would turn up. At the end of a week urine began to come through the vagina and continued for months.

From my experience with the previous case I had hopes that this would also heal. I was, however, on the point of advising operation when the flow ceased for several days and then returned. There was some lumbar pain. Several times the urine ceased flowing through the vagina and then reappeared. The intervals of return increased till at last it ceased permanently. For nearly three years she has been well.

I dare say that the majority of surgeons would deny the probability, yes, the possibility, of such a result as narrated in these histories. Yet such has been my experience in the only two cases in which I have had the ill luck to injure the ureters. It pays, therefore, to wait, in a condition like this which is not dangerous, and give the reparative powers of the body a chance.

CASE III.—Mrs. B., nearly 60, had had a prolapsus uteri for years, for the support of which she had been wearing a Mackintosh supporter. She came to me with a uretero-vaginal fistula on the left side, evidently made by pressure of the edge of the cup against the vaginal wall. She refused to be operated upon

and disappeared. I have always wondered if it also did not heal by granulation.

CESAREAN SECTIONS.

CASE IV.—Mrs. G., aged 35, had been in labor about twelve hours, at term. She had had several children. Her attending physician, when first called, found a rotund body presenting which felt like the fetal head, but he could not find the os uteri. Later the os was found anterior to the mass, high up and pressed forward over the pubic arch, the mass in the pelvis being a tumor below the uterus. The growth proved to be a carcinoma of the rectum entirely filling the true pelvis. She was removed to the Buffalo Woman's Hospital, where I did a Cesarean section the same evening. Frederick Caesar was a hearty lad about 4 years old the last I heard of him. The mother lived two and one-half years in comparatively good health, dying from acute obstruction. Two microscopical examinations were made of pieces of this growth which were taken from the rectum, one soon after operation and the second about two years later. Both were carcinomatous. The husband reported no obstruction to perfect coition up to the fifth month of pregnancy, when he began to notice something wrong. The growth evidently was of very rapid development during pregnancy, in contrast to its very slow progress after delivery.

CASE V.—The second case of Cesarean section is reported because the child died at delivery. The mother lived for several weeks and died of nephritis. The uterus was delivered as usual and the cervix was ligated with an elastic ligature. The anterior uterine wall was incised from the fundus downward. The placenta was found to be implanted directly under the line of incision, and some large fetal vessel in it was either cut or torn, for there was a large gush of blood, not from the uterine wall, but from the placenta. It was rapidly removed and the child promptly delivered. A forceps was at once placed on the cord, but the child was pale and exsanguinated. Respiration was sighing, the pulse was imperceptible, and saline infusion, oxygen, hypodermatic stimulation, etc., were of no avail. It died inside of fifteen minutes. Previous to section its heart tones had been strong and vigorous.

I never before had seen the placenta implanted on the anterior uterine wall at a Cesarean section, and I have seen several. It

never had occurred to me that such an accident might occur. I therefore recount the case, so that others may profit by my experience. A more careful incision might have prevented the accident.

SIGMOIDO-VAGINAL FISTULA.

CASE VI.—There are two reasons for reporting this case of sigmoido-vaginal fistula and the operation done for its cure: first, because, so far as the writer can ascertain, it is unique; second, because its etiology is so obscure. Dr. J. B. Murphy, whose acquaintance with the literature of intestinal surgery and of rare cases is large, says it is unique.

The history, as given by the attending physician, is as follows: Mrs. H., aged 32, mother of four children, the last having been born one year previous to the beginning of present illness. Family history good; cancer and tuberculosis not among family diseases. On August 2, 1894, Dr. Chamberlain, of Meadville, Pa., where the patient lived, was first called. She had been ailing for several days. He found her considerably reduced in flesh and strength, with fever and a foul-smelling vaginal discharge. Examination revealed sloughing of the vaginal portion of the cervix uteri, which was supposed to be malignant in nature. Antiseptic douching and general tonic and sustaining treatment was followed.

About August 15 she began to bleed freely from the vagina, at times profusely. This continued five or six days, much reducing her strength. September 5, Dr. J. C. Cotton, of Meadville, saw her in consultation. Some soft tissue was everted away, and a uterine sound was found to pass freely through the uterine wall into some cavity within the abdomen. There is no report of fecal matter having passed through this opening at this time. But soon after her condition became much worse, the foul odor continued, and late in November, after four months of illness, death seemed imminent and was expected from day to day.

At this time her bowels began to move freely through the vagina and she began at once to improve. Previous to this time for several weeks it had been nearly impossible to obtain any movements from her bowels. In three months' time the patient was well, all discharge except feces from the vagina had ceased, and with that exception she felt well.

On May 22, 1895, six months after the first appearance of the

fistula, I saw the patient with Dr. Cotton at the Meadville General Hospital. On examination I found all the parts soft and free from any feel of a malignant nature. The left lateral half of the cervix and body of the uterus were gone, allowing the examining finger to enter the uterine cavity to the fundus. The parts were all covered with healthy-looking epithelium.

Evidently the left utero-vaginal junction, the uterine artery and vein, and a part of the left broad ligament had been destroyed by the necrotic process, this accounting for the profuse hemorrhages she had had soon after the beginning of her sickness.

My finger passed just to the left of the uterus into an opening

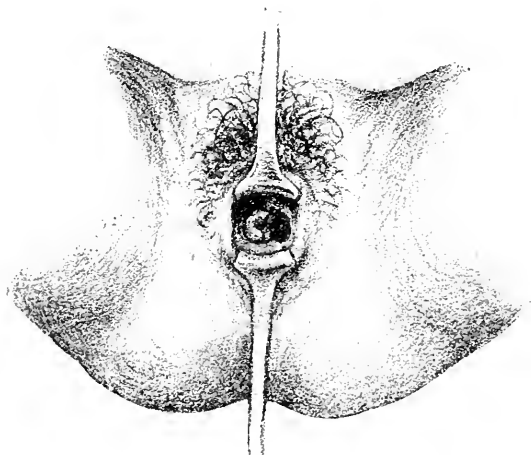


FIG. 1.—Sigmoido-vaginal fistula.

which felt like gut; the edges of the mucous membrane of the same could be felt pouting out into the vaginal canal. Speculum examination showed this to be the case. Rectal examination revealed complete occlusion of the gut four inches above the anus, the rectum being of normal size till it reached the occluded end, which was simply a rounded cul-de-sac.

I operated immediately after completing examination. When the abdomen was opened a mass of adherent gut, tube, ovary, and new deposit was found filling the left side of the pelvis down into Douglas' pouch. After freeing adhesions and checking hemorrhage, which was rather profuse, I found the point at which the sigmoid opened into the utero-vaginal junction. The gut was cut loose from this attachment, leaving a free cross

section of the sigmoid at this point and a large, ragged opening into the vagina.

The rectal cul-de-sac deep down in Douglas' pouch was located by having an assistant pass a long cylindrical speculum into the rectum and push it up from behind the uterus. An opening was made into the upper left-hand side of the occluded end of the rectum and one half of a Murphy button placed there. The other half was placed in the free end of the sigmoid. The mesocolon was then cut and stretched to allow the end of the sigmoid to be carried low enough to join the two parts of the button. In such cramped space at the bottom of Douglas' pouch it was no easy matter to do, but finally it was done, thus making an end of sigmoid to side of rectum anastomosis.

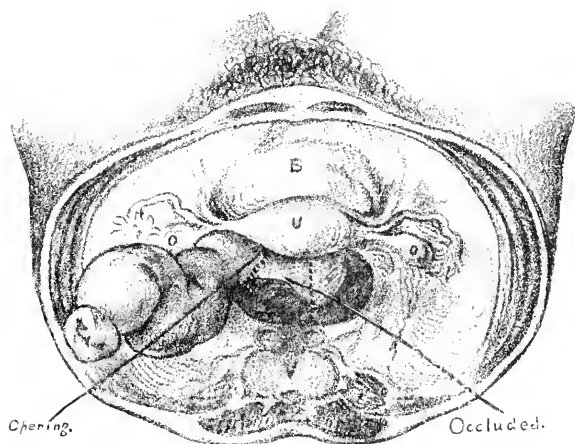


FIG. 2.—Sigmoido-vaginal fistula.

Between the occluded end of the rectum and the point where the sigmoid opened into the vagina was about three inches of gut which was absolutely closed. This was the only available tissue with which I could close the opening from the peritoneum into the vagina. The uterus was fixed and could not be drawn to the left, and sloughing of the broad ligament had made tissue scarce. I therefore freed this piece of gut enough to bring it up into the opening, at the same time leaving enough blood supply to prevent sloughing. I stitched it over the opening, flushed out the abdomen with a warm normal salt solution, and closed the abdomen. She made an uninterrupted recovery.

Her bowels moved through the button on the fourth day and the button came away on the eleventh day. Had I had time I should have closed the cleft in the uterus also; but she had been under anesthesia for an hour and I did not do it. Her bowel function has been perfect since. She has been perfectly well, except at times she has more uterine discharge than she ought. Menstruation is regular and normal, and her general health is good.

What was the probable cause of this sloughing primarily? Malignancy cannot be considered as the probable cause. A malignant slough would not have healed as this did, leaving no trace of infection in surrounding tissues. At the time of operation the edge of the uterine wall which had sloughed was covered by a healthy epithelium. That part of the gut between the rectum and the sigmoid which was used to close the vaginal opening was completely occluded as by an inflammatory process. It is my belief that this began first as a sigmoid ulcer, possibly due to a spiculum of bone or some other foreign substance penetrating the mucous coat and setting up an infective inflammatory process which eventually invaded the broad ligament, vaginal vault, and left half of the uterus. I was unable to get a history of any bowel disturbance for a period prior to the real illness which might lead up to a probable diagnosis of sigmoid ulcer.

REOPENING ABDOMEN FOR SEPTIC PERITONITIS.

CASE VII.—Mrs. McK., aged 32, had a large, semi-solid tumor about the size of a seven-months pregnancy. She had been pronounced pregnant, which was true, but it was not intrauterine. She gave a history after operation of suppressed menses and suspected pregnancy one year before, and a history of recurring attacks of pain and fainting, at each of which times the tumor increased in size and remained permanently larger. This history was elicited after her recovery. Before operation she was too sick to give any history.

On opening the abdomen I found a subperitoneal semi-fluctuating mass, of which the uterus formed a part of the anterior wall, and the posterior surface was covered by descending colon and sigmoid which had been raised up out of the pelvis. Coils of small intestines were adherent posteriorly. The peritoneum was incised in a clear area and the mass enucleated with difficulty. It consisted of partially organized blood clots in concentric layers. The semi-fluctuation was due to a recent hem-

orrhage into the sac. Besides the clots and fluid blood a placenta and a dead six-months fetus in its membranes were also removed.

I then found that I had torn diagonally across the sigmoid, completely. This had been done as the sac had torn while enucleating, the mesosigmoid forming a part of the posterior wall of the gestation sac. The gut was joined end to end by a Murphy button. To drain the gestation sac Douglas' pouch was opened freely and a drainage tube passed into the vagina. The edges of the sac were then trimmed and closed by continuous catgut suture. The abdomen was flushed and closed, leaving all the fluid it could contain.

Everything went beautifully for three days. On the morning of the third day she complained of abdominal pain, the pulse became rapid and thready, the expression became pinched, and green vomit began. I saw her six hours after this change. I thought that the button had given way and proposed to reopen her at once. The abdominal cavity was overflowing with fetid, purulent fluid, and coils of gut were covered with flakes of lymph—a most unpromising condition. The button was found to be intact, but the edge of the sac had sloughed for about two inches and the contents of the gestation sac had escaped into the peritoneum. After cleansing the cavities, the edges of the sac were trimmed back into healthy tissue and resutured. The abdomen was again flushed and a strand of gauze packed over the line of sutures, and the end carried out at the lower end of the abdominal incision. She was stimulated and well nursed. The following day she was still pulseless and cold. I told her there was no hope of her recovery and on my departure left a signed death certificate at the hospital. The same afternoon she began to show some pulse, her bowels moved freely through the button on the following day, and from that time her recovery was rapid and uninterrupted. She now is as well as ever in her life. The button came away on the ninth day.

CASE VIII.—Mrs. C., 38 years of age. Has a pyosalpingitis which has been discharging for a year through the bowel and at times through the bladder. It is now discharging through both viscera. Her skin is sallow, she is emaciated, has no appetite, has temperature constantly—in fact, is generally septic. The left tube and ovary were enucleated from dense adhesions and the openings into the sigmoid and bladder closed. The abdomen was thoroughly flushed and closed without drainage, the belly

being left as full of normal salt solution as possible. A self-retaining catheter was placed in the urethra.

Patient did well till the fourth day. No signs of peritonitis were present and bowels had moved. The pulse began to change in frequency and character, and all the symptoms of rapid septic infection of the peritoneum came on. She was reopened in a few hours. The sutures in the gut were all right, but those in the bladder had sloughed. The edges were trimmed back into apparently healthy tissue and reunited in layers, mucosa, muscle, and peritoneum. The lymph was removed from all the intestines and the cavity generally thoroughly cleansed. Gauze was packed over the line of suture and the end carried out at the lower angle of the incision.

She improved at once and began to take small quantities of nourishment. Her bowels moved daily with cathartics and enemas. All signs of peritonitis passed away, but her temperature and pulse still kept up, with profuse sweating. In four days urine began to come up through the wound, showing the failure of the second suture of the bladder to unite. The sinus and bladder were irrigated frequently, both from above and through the urethra. She died on the sixteenth day after operation, not from septic peritonitis, but from general sepsis. Although she eventually died, we must recognize that the septic peritonitis was stopped in its fatal course. The sinus from the lower angle of the incision to the hole in the fundus of the bladder was completely walled off from the general peritoneal cavity, which was clean, although showing many adhesions. Had she been in a less septic condition at the time of operation there is every reason to believe that she would have recovered.

When the septic process is not the result of infection at the time of operation, but secondary in nature, dependent upon the non-closure and leaking of a line of suture in some viscus, then the chances for success in promptly reopening the abdomen are best. In fact, I might go so far as to say that only in that class of cases is it indicated. If these openings into viscera have been caused by intrapelvic pus collections draining through them, we have primarily an infected area to bring together with suture and there is no certainty of securing primary union. If there has been no primary infection of the peritoneum, the patient will go along well till such time as the line of suture gives way and the peritoneum is invaded by septic material. At such time the change is as prompt and as well marked as in perforat-

ing typhoid ulcers or perforative appendicitis. Then is the time to operate promptly, and the results promise as well as for prompt operation in any perforative process.

DOUBLE RUPTURED TUBAL PREGNANCY.

CASE IX.—Mrs. F., aged 38, mother of several children, gave all the signs and symptoms of ruptured tubal pregnancy. History showed rupture to have occurred primarily about ten days prior to operation. The pelvis was full of blood clots on both sides, and both tubes were found ruptured and the seat of hemorrhage.

There have been several cases reported of recurring tubal impregnation in the same patient, but I never have seen one reported of simultaneous rupture of both tubes.

ABSORPTION OF NON-OPERABLE FIBROIDS.

CASE X.—Mrs. P., aged 30, had a uterine fibroid which on opening the abdomen was found so universally adherent as to render it advisable not to remove it. The fundus of this growth lay about midway between the pubes and umbilicus. In one year after operation the growth has almost entirely disappeared.

CASE XI.—Mrs. E., an exactly parallel case to No. 10.

How or why a retrograde process was established in these cases of fibromyoma of the uterus simply by opening the abdomen is about as inexplicable as is the similar result in some cases of tubercular peritonitis.

MECKEL'S DIVERTICULUM AND PATULOUS URACHUS.

CASE XII.—Master W., aged 8. This child has never been strong. When about 4 years of age he began to have abdominal pain, and redness and swelling about the navel appeared, followed by a discharge of foul-smelling, grumous fluid and some blood. In a few weeks the discharge ceased, and reappeared again in a few weeks with the same pains. When seen by me the pain and discharge had been constant for over six months, the umbilicus was swollen, red, and the skin excoriated for an area of two inches in diameter. This little fellow was being given one-quarter-grain doses of morphia several times daily, and then was in pain a great part of the time. A probe passed downward toward the base of the bladder about two inches—a pervious urachus.

Operation.—An incision was made in the abdominal wall down to the director in the open urachus and the latter excised. While excising the infected umbilicus a diverticulum from the ileum was found leading to the umbilicus. It was removed with the umbilicus. Since operation the pains have entirely disappeared and the boy is gaining color and flesh. Meckel's diverticula are rare, so is a pervious urachus, but to have both associated in the same patient is still more rare. Hence my report of it.

PUNCTURED UTERINE WALL.

CASE XIII.—Mrs. B. had an intrauterine fibroid which had been expelled and lay in the vagina. The growth was about as large as a medium-sized orange. The cervix had retracted about what seemed to be a short pedicle. With curved scissors I proceeded to cut the capsule near the pedicle, so as to enucleate the tumor. When the growth was out I could pass two fingers through the opening in the uterine wall directly into the peritoneal cavity. The apparent pedicle was a partially inverted uterus, dragged down by the contracting os as it slipped back over the fibroid. Hemorrhage being quite free and it being difficult to close it easily through the cervical canal, I opened the abdomen and did it more readily and satisfactorily. Lesson: look out for short pedicles on extruded intrauterine fibroids.

CASE XIV.—After abortion the attending physician had curetted the patient for retained secundines. He perforated the fundus posteriorly and drew a loop of ileum into the opening with a placenta forceps. Recognizing that something was wrong, he desisted and waited for developments. Soon symptoms of intestinal obstruction came on, and on the second day I saw her in the evening. She was removed at once to the Woman's Hospital and operated. The gut was incarcerated, but not strangulated. It was easily pulled out of the opening, which was closed with a suture and the patient promptly recovered.

CASE XV.—A second case to which I was called, following curettage after abortion, did not result so favorably. In this instance the physician went through the uterine wall, pulled down a loop of gut, and never quit till he had stripped six feet of it from the mesentery, and then cut it off and sent for me. I arrived in time to see the patient die. Comment is unnecessary.

EARLY OPERATIONS IN APPENDICITIS, AND METHOD.¹

BY

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It would be difficult to list the large number of papers and discussions I have made, from time to time, all over this country, urging an early surgical interference in appendicitis.

Many years ago I felt the importance of educating the working profession up to recognize the symptoms of a trouble commonly developed very rapidly, and which, in a few days, kills a large number of children and young people. Many of you have been interested in precisely the same missionary work, and many of your contributions have been classical.

While reading papers before County and State societies, and never losing an opportunity, in public or private, to press early surgical intervention, I found I had lowered the mortality in my own work, as well as in that of my surgical friends.

Some years ago I felt almost the last word had been said on the subject, that a uniform consensus of opinion had grown up throughout the working profession; but in the last two years' work I find that I am in error. The professors of surgery, in the more prominent schools and educational centres, cling to ancient therapeutics, hot and cold applications, and the same old procrastination that we hammered at so long.

While dealing with pus and gangrene, gangrene and pus daily, one naturally seeks a solution for the appalling pathological conditions that should never occur, except out of the reach of intelligent clinicians. The unfavorable conditions referred to are more common now than ever before in the history of this subject, but few appendicitis operations are done early.

Calomel and salts, and the confidence the profession have in their use, delay many operations. Professional gossip and criticism prejudice the public.

Good family physicians are commonly asked by their patients: "Are not surgeons doing unnecessarily the operations for ap-

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

pendicitis?" and the answer is commonly: "Yes; they can be cured by remedies."

The same practitioner places himself in an unfortunate position, and he wholly overlooks the fact that appendicitis may develop at any time in his patient. This has occurred twice recently in my own work. A good practitioner had told his patients that operations were not necessary. In both cases, those of two fine children, open treatment was necessary to save them.

It is high time that the working profession recognized the fact that the active surgeon has a conscience and uses it.

In the last three months I have operated on about one hundred cases of appendicitis, with a mortality that pleases me, and I am hard to please. Seventy-five per cent have been managed by open treatment. I wish I knew how to save them by some other method. Nearly all of them have been explosive cases, and none of the operations was done the first or second day. In two ball-players (pitchers) the operations were done on the third day. They were perfectly comfortable and were pitching good balls seventy-two hours before the operations. In both cases I found gangrenous appendicitis with perforations and general peritonitis. Both were recognized and could have been done twenty-four hours earlier.

I am listed for "Early Operations in Appendicitis, and Method." A few lines or half a sheet of this paper would be quite sufficient to dispose of the subject as listed.

I am satisfied that there is but one treatment for appendicitis—early clean removal of the appendix. The diagnosis is easy and should always be made. The symptoms are commonly well marked. The choice of method should not worry the operators. A pair of scissors with needles and fine thread is all that is necessary. Cut off the appendix smooth with the cecum and close the opening with fine silk. Most operators differ in their methods; but with the appendix out and the opening closed the results are about the same. Early in the development of acute appendicitis the inflammatory wall of the general surgeon does not exist, except in his timidity and fear of a peritoneal cavity. The adherent bowel and omentum on the inner side of the cecum forms only a part of walling off so commonly referred to. The inflammatory products go freely up and down into the pelvis and to the kidney. Numerous pus pockets are commonly found as high up as the kidney. The pelvis is full of filth, if you will only look for it. Occasionally you will hear of a gen-

eral surgeon reopening his patient two or three days after the operation and finding the pelvis full of filth. Had he explored the pelvis primarily, a toilet and drainage would have saved the patient. The general virulent peritonitis found "post mortem" should have been recognized, at the time of the operation, by freeing all adhesions and making a general as well as local toilet.

In a few cases I have eviscerated the patient, freed all bowel adhesions, and washed the loins and pelvis before replacing the bowel. In two cases I am satisfied that patients could not have been saved by any other method—two lovely girls 15 years old. I find but few surgeons understand irrigation or drainage of the peritoneal cavity; and they are very much in the position of the fashionable practitioner who cures appendicitis by remedies and never loses a case, and who always refuses to witness operations. The surgeon who refuses or never goes to the trouble of seeing a successful operator clean the peritoneal cavity and drain it, continues to excuse his disastrous results by pleading that their conditions were hopeless.

The deaths in my community from appendicitis have been very numerous, many important citizens having been lost in the last two years. Intelligent lay people seem much more alarmed than the profession.

Some years ago, at the operating table, while removing the little assassin, I remarked before students and visitors that it was lamentable that we could not remove the appendix while tying the umbilical cord at birth and with the same degree of safety. A few days later a very prominent lady called at my office and wanted to know if it were true that I was urging the removal of the appendix when the cord was tied in the dear little babies. I replied that I had tied the cord in my own five dear little babies, but had not removed the appendix in a single one. Recently at two prominent social functions I was asked by prominent ladies why the appendix could not be removed at birth.

No one should ever die of appendicitis in an enlightened community. The diagnosis is easy and sure. No harm comes of an error in diagnosis; if the patient is not suffering from appendicitis, it is some other intrapelvic or peritoneal pathological trouble requiring surgical attention. The removal is safe and easy.

Some sections of country seem particularly favorable for the development of appendicitis.

Surgically we would not permit a dirty sinus like the appendix to exist at any other point of the body. This dirty little anatomical cesspool is more prone to gangrene and perforations in individuals fond of field sports favoring prolonged exertion in the erect posture. All sorts of employments in the erect position favor non-drainage and appendicitis. This fact is particularly so at summer resorts. Again, the change of diet has a causal relation. The large number of patients prompting this paper were away from home, taking their summer vacation and enjoying all sorts of outdoor sports.

A few years ago I reported a series of seven patients advanced in age (none under 65); all bore the operation well and recovered.

This summer the operations have been done chiefly on children between the ages of 8 and 20. About seventy-five per cent are boys—fine, athletic chaps—and about twenty-five per cent girls. A large number of the latter were menstruating at the time of the operation, in some instances complicating the diagnosis. The disease has been quite common and fatal at summer resorts. A large number of operations were done at Atlantic City, and a few patients were shipped home for operations.

The history as given, the early symptoms (commonly well defined)—it should never be overlooked. It is really trying that there should be any delay in surgical intervention. Physicians commonly tell us they recognize the trouble at the first visit; and go on telling us that they usually succeed in relieving the symptoms. The interval operation, so commonly referred to, has done much to mislead the general practitioner and much to complicate an operation in which there should be no complications.

SARCOMA OF THE BREAST.¹

BY

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VIRCHOW in 1847 introduced the term sarcoma. It is claimed by some that this disease is the result of connective-tissue prolif-

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

eration from a matrix of fibroblasts of congenital or postnatal origin, adding that it is true that the different forms of sarcoma resemble more closely chronic inflammatory processes than does carcinoma; but we are not in possession of demonstrative proof of the microbial origin of sarcoma.

Gross tabulates 156 cases; Poulsen, 33. Of the round-celled variety, including the rare endothelial tumors, in 27 per cent; giant cell, 5 per cent; spindle, 68 per cent; cystic form in spindle cell, 36 years; cystic form, 38 years, and solid form, 43 years. The nipple seldom retracts: Poulsen found it in 2 cases and Gross in 5. Poulsen operated on 14 cases of the cystic form, of which 75 per cent remained well; 58 per cent remained well over four years. Gross operated on 91 cases, of which 59 recovered and 32 remained well; for more than three years, 19; permanently cured, 20 per cent.

My friend Dr. David Riesman, of the University of Pennsylvania, has collected some statistics along with comments, which I give with much pleasure.

Sarcoma of the breast is much less common than carcinoma. Roger Williams¹ analyzed 2,397 tumors of the mamma and found only 94, or 3.9 per cent, to be sarcomata. During the last few years I have received for examination, from various surgeons in Philadelphia, 53 tumors of the breast. In 5 of these I have preserved no record of the microscopic features. Of the remaining 48, 29 (60.42 per cent) were carcinomata; 14 (29.16 per cent) were adenomata and fibroadenomata; 1 (2.8 per cent) was a case of Paget's disease; and 4 (8.33 per cent) were sarcomata.

Clinically, sarcoma presents itself as a diffuse growth which is sometimes bilateral or in the form of circumscribed nodules. The diffuse variety grows very rapidly and often attains enormous proportions. It has a tendency to recur *in loco* after operation and to spread by contiguity. But it is not prone to give general metastasis. In a few instances the neighboring lymph glands have been involved. Adhesion to the skin, with the function of superficial ulcers, is common. On section the growth is moist and resembles the flesh of fish. The presence of hemorrhages modifies these characteristics.

The diffuse, rapidly growing tumor histologically is generally a round-celled sarcoma. It is subject to mucoid degeneration and to hemorrhagic softening. The latter gives rise to large cystic spaces which contain quantities of thin, sanguineous fluid

¹ Diseases of the Breast, London, 1894.

resembling Worcestershire sauce. Occasionally the veins are thrombosed, the thrombus consisting of a core of tumor tissue surrounded by a lamina of blood clot.

The nodular sarcomata are usually much firmer than the diffuse, and, while tending to recur after removal, do not often invade the adjoining tissues; nor do they produce metastasis either of the lymph glands or of the general system. They seem to have their origin from the connective tissue about the milk ducts, especially those near the nipple. They often possess a well-defined capsule. Histologically they are either composed of spindle cells or are polymorphic; that is, are made up of several kinds of cells. The majority of the cells have a single large, vesicular nucleus, but in some two or more nuclei are found. Such multinuclear cells (small giant cells) were present in two of the four cases which I have examined. Bands of fibrous tissue commonly radiate through the tumor, at times producing an alveolar appearance that causes a close resemblance to carcinoma. The blood vessels are of the characteristic sarcoma type, that is, merely endothelium-lined spaces without the characteristic walls of blood vessels.

A cystic change is frequent in sarcoma, and is produced either by softening or by compression of gland ducts. In the former case the spaces are not true cysts and do not possess a wall lined with endothelium.

True retention cysts are a common feature. When they are present the tumor can properly be called cystosarcoma. Occasionally the sarcomatous tissue projects into the gland ducts and cystic spaces in the form of branching papillary processes, which may even perforate the cyst walls. Various names have been applied to this variety of cystic tumor, as intracanalicular sarcoma, intracanalicular cystosarcoma, and cystosarcoma with intracystic growths.

Endothelioma of the breast is rare, but probably certain peculiar, plexiform sarcomata and angiosarcomata really belong to this class. Opinions differ as to whether endotheliomata are sarcomata or carcinomata; but the weight of authority, it seems to me, is at present in favor of considering them sarcomata. They grow primarily from the endothelium of the lymph and blood vessels, the walls of which form an alveolar stroma, whereby a resemblance to carcinoma is produced. Similar tumors, springing from the flat cells of the perivascular lymph glands, constitute the so-called peritheliomata.

CASE I.—Miss F., æt. 18. I saw her in 1886 for the first time with the following history. During the previous year she had noticed a growth that was very tender from the start, appearing in her left breast. When I saw her it was the size of an English walnut; axillary glands not involved. Nipple not retracted. Advised removal. This was done along with the greater portion of the mamma. Axilla not disturbed. The growth was submitted to a microscopical examination by Dr. Walter Gibson, which showed it to be a round-celled sarcoma. I was criticised by some of my colleagues who were present, and later on by one standing high in the profession, for removing benign growths, unnecessarily disfiguring a mamma of one so young. The argument used was that the growth had not returned and therefore was not cancer, all of which is not without some force of argument.

CASE II.—Mrs. McS., aged 64; married; mother of three children. Thirty years before, and at the age of 34 years, she first noticed a hard, round, small "lump" in her right breast. Eight years after this she called the attention of her family physician, Dr. G. R. Ricketts (deceased), to it, exacting a promise that he tell no one. This was twenty-two years before its removal. He advised non-interference. He never saw the case or mentioned it until three days before I was called, May, 1897. In January, 1897, she had an attack of influenza and was greatly prostrated from its effects, and from this time the tumor grew rapidly, being near the size of a child's head. On my visit I found her with a tumor of the right breast which was about as ugly and vicious-looking a growth as I had ever beheld. The opening in the growth was large and from it a dark, sanious fluid was discharging. The growth was so large that the right arm was forced to project well out from the body. Temperature and pulse were normal. Nipple not retracted.

After drying out the cavity it was packed full with five per cent carbolic gauze. The surrounding skin was washed with soap and water, after which pure alcohol was freely applied. No enlarged axillary glands could be felt, especially after we removed the growth, which weighed twelve pounds. Although a large woman, we experienced some difficulty in bringing together the edges of the flaps. Axilla was not disturbed. There were two points of suppuration, but with the exception of this her recovery was entirely satisfactory. It is now nearly four and a half years since the operation was performed, and there is no

evidence *in loco* or by metastasis of recurrence. Dr. P. C. Layne examined the growth, taking microscopical sections, and found it to be a large spindle-celled sarcoma.

CASE III.—Mrs. B., aged 35 years; widow; mother of two children; patient of Dr. Menefee, of Crittenden, Ky. She first noticed a “lump” in her right breast at the age of 14, which gradually grew in size. During the past three years she noticed that its growth was more pronounced. The nipple not retracted. The axillary glands were normal in size and not tender. The growth was the size of a child’s head at birth, very tender. Movable. There was evidence of fluid in part of the growth. The growth was nodular. The tumor along with the entire breast was removed September 4, 1901. The axilla was not opened. Recovery was satisfactory. The patient did not lose flesh any time before or after the removal of the tumor. It was a fibrosarcoma, as proved by the microscope.

415 BROADWAY.

CORNUAL PREGNANCY; RUPTURE IN THE FOURTH MONTH; OPERATION; RECOVERY; REMARKS.¹

BY

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(With three illustrations.)

I WAS called July 12, 1901, by Dr. Miller, of Decatur, Ind., to see Mrs. H. I learned on my arrival that the patient had menstruated last in March; that she had had some symptoms of threatened abortion some weeks prior to the present attack, but that she had entirely recovered and was in good health up to within sixteen hours of my visit, when she was taken with severe abdominal pain accompanied by the usual signs of intra-abdominal hemorrhage. Dr. Miller, in consultation with Dr. Beavers, had made a diagnosis of ruptured ectopic pregnancy and had given the patient a rectal injection of normal salt solution prior to my arrival.

I made a very hasty examination which convinced me that the

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

vagina and vaginal cervix were normal and that the hemorrhage was not intrauterine. There was a slight bloody discharge from the uterus. Everything seemed to warrant the diagnosis of intra-abdominal hemorrhage, but it was remarked that the time was rather late for rupture of a tubal pregnancy. The patient was a married woman, 20 years of age, and had given birth to one child at term and had had one miscarriage. She was almost in collapse. Preparations were therefore hastily made and the abdomen opened under ether narcosis. The belly was full of blood, through which, with the hand, a ruptured gestation sac was delivered. The amniotic sac was ruptured during the delivery. A temporary elastic ligature was thrown around the sac, after which it was amputated by conical section, the stump closed by deep and superficial catgut stitches, and the elastic



FIG. 1.—Sac and fetus. Showing ragged margins of rent. Cavity held open by match. To the left is shown the space from which portion for microscopical examination was taken. An idea of thickness of sac can be gained from this point. One-fourth natural size.

ligature removed. The blood clots were now removed and the abdominal cavity washed with a large quantity of hot sterile water. During the washing of the cavity it was noted that the tube and ovary on the side from which the sac had been removed remained intact and attached to the outside of the stump; that the intact horn was much enlarged; that the two cornua were connected by a rather long pedicle. Notwithstanding my great desire to make a careful examination of the case through the open abdomen, the patient's condition prohibited it. As soon as the abdomen was fairly cleaned of blood it was therefore closed with through-and-through silkworm-gut sutures. The cavity was left full of hot water, and during

the operation a rectal injection of hot salt solution was given. Hypodermatic injections of digitalin were given before and after the operation. The patient was put to bed in a condition no worse than when she went on the table, and made an uneventful recovery. The specimen which is herewith presented (Figs. 1 and 2) shows a thick-walled gestation sac containing a well-formed placenta. On macroscopical examination there appears to be no decidual membrane. No part of tube or round ligament is attached to sac. The incised surface indicating the point at which the amputation of the sac was made is irregularly circular, cone-shaped, and about two inches in diameter. I have not



FIG. 2. Showing cut surface of sac extending to margin of rupture on right. One-third natural size.

been able to discover on this surface any opening which appears to represent the lumen of the tube or the cavity of the uterus. Neither was anything of the kind found on the stump from which the sac was amputated; however, owing to the necessity for haste, this examination was rather cursory.

The fetus is a male of about four months. At the time of the operation it was noted that the attachment of the round ligament and tube was at the outer aspect of the stump, *i.e.*, below the gestation sac and to the outer side of the uterus.

In pregnancies in rudimentary cornua of unicorn uteri the tube usually springs from the apex of the sac. The method

of development of this portion of the genital tract, it would seem, would render this relation of the tube and sac in this class of cases inevitable. In both of Turner's cases, as reported by Sutton,¹ the sac and tube bore this relation to each other. Virchow² also points out that the round ligament is on the outer side of the gestation sac in cornual pregnancy, while in tubal pregnancy it is attached to the body of the uterus on the uterine side of the sac. Again, in tubal pregnancy the sac walls are very thin and rupture takes place from the third to the twelfth week. In the case presented the walls of the sac are thick, except at the point of rupture, and rupture did not appear until after the fourth month. Microscopical sections show the sac wall to be composed of uterine tissue and that there is present a decidual membrane.

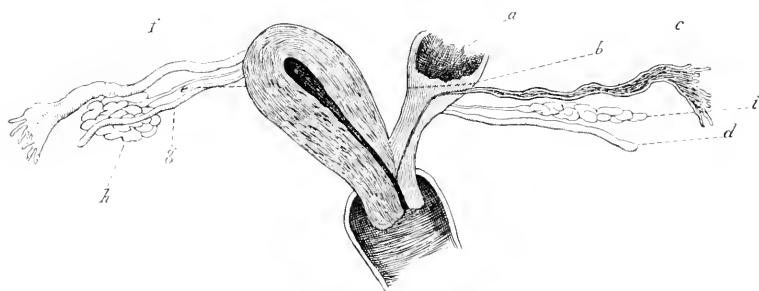


FIG. 3.—*a*, ruptured gestation sac; *b*, line of incision; *c*, tube; *d*, round ligament; *e*, right uterine body; *f*, right tube; *g*, round ligament; *h*, right ovary; *i*, left ovary.

Now, with the foregoing evidence before us, what are we to decide as to the nature of the pregnancy in this case?

The thick sac walls, the late time at which rupture took place, and the relation of the tube and round ligament make a diagnosis of tubal pregnancy impossible. The relation of the tube and round ligament would rule out cornual pregnancy in an ordinary bicornuate uterus. Aside from the relation of the tube and round ligament, all the evidence is in favor of cornual pregnancy.

The anatomical relations found in this case are represented in the drawing here shown (Fig. 3). A glance at the illustrations Figs. 1 and 2 will also show no signs of either tube or ligament attached to the sac. An abnormally low attachment of the tube and round ligament to the horn of a bicornuate uterus such as shown in the drawing would satisfactorily account for all

conditions found. These I believe to be the conditions which obtained in my case, and that the correct diagnosis is: pregnancy in an imperfect horn of a bicornate uterus, with abnormally low attachment of the tube and round ligament on the side of the pregnancy; rupture in the fourth month. The only other plausible theory is that the pregnancy was an interstitial one and that the sac had developed in an upward direction, away from the tube, in such a way as to make it possible to remove the sac without interfering with the tube, as was done in this case. The greatest obstacle in the way of the acceptance of this theory is the presence, as shown by microscopic examination, of a decidual membrane in the sac.

That a decidual membrane might be formed in a tubo-uterine pregnancy seems entirely possible, and that one would form in a pregnancy of this kind in a bicornate uterus where Nature had not definitely separated the tube from the uterus seems extremely likely. But Sutton, Doran, and Parry say they have never seen a decidual membrane in an extrauterine sac. Sutton says³ that all authorities who have studied the subject are unanimous that no decidua forms in the tube. The absence of communication between the sac and the tube and between the sac and the cervix, which was found in this case, is worthy of note.

Absence of communication between the sac and the cervix seems to be common and was noted by Turner in the two cases examined by him and referred to in Sutton's work. In Turner's cases, however, the lumen of the tube was continuous with the gestation cavity. As above stated, this is not true of my case. Sutton⁴ says the lack of communication between the cervix and sac may be accounted for by supposing that the channel is closed subsequent to the impregnation. The same explanation will also account for the lack of communication between the tube and sac.

Kussmaul⁵ has collected 13 cases of pregnancy in rudimentary cornua, all of which ruptured between the fourth and sixth months. According to Sutton, Virchow and Lusehka have each reported a case.

Turner has reported two cases, which are described in Sutton's work.

Parry⁶ and others think that Kussmaul overestimates the frequency of cornual gestation.

Dunning,⁷ in his paper before the American Medical Association on "Double Uterus and Vagina," tabulates 52 cases of

uterus bicornis, in 21 of which pregnancy had occurred. He concludes that the malformation is more common than is generally supposed.

M. L. Seeheyron⁸ reports a case of bicornate uterus in which the first pregnancy and labor were normal in every respect, but in the eighth month of the second pregnancy rupture occurred as the result of a fall.

Weiner⁹ removed by laparotomy a mature fetus in a state of maceration from a bicornate uterus about a month after a missed labor. The woman had previously borne two children.

Ferguson¹⁰ reports a case in which during a celiotomy he discovered a U-shaped uterus in a woman who had borne two children.

Hollander¹¹ made a similar discovery in like manner. One cornu in this case was pregnant.

Sutton¹² is authority for the statement that gestation in bicornate uteri rarely gives rise to trouble.

Even the cases above referred to in which rupture occurred would seem to lend color to this view, for in three of these cases, including my own, previous normal pregnancy had occurred four times. I can find no reference in the reports of the other cases to this point.

Ferguson's and Hollander's cases would seem to show that many cases of normal labor occur in women with bicornate uteri without the malformation being recognized. It is only when pregnancy occurs in an ill-formed horn of a bicornate uterus that rupture is likely to occur. The conclusion is warranted, I think, that rupture of pregnant bicornate uteri is not only absolutely rare, but relatively rare as well, *i.e.*, the proportion of ruptures as compared with the pregnancies in bicornate uteri is small. I have been able to find but 18 cases, which with my own makes a total of 19 cases reported. Inasmuch as the treatment for this condition is the same as that for other forms of ectopic pregnancy, the differential diagnosis is not important. It is well that this is the case, for the differentiation is well-nigh, if not quite, impossible. Especially is this true as between interstitial and cornual pregnancy. In both the rupture occurs later than in tubal pregnancy, and in both the hemorrhage is usually profuse. The average time at which rupture occurs is, however, later in cornual than in interstitial pregnancy.

In cases of cornual pregnancy there is less likely to be a history of previous sterility than in other forms of ectopic preg-

nancy. Evidence of inflammation of the tubes is more frequently found in the other forms of ectopic pregnancy than in eornual pregnancy.

47 W. WAYNE STREET.

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AN INTERESTING CASE OF TUBO-ABDOMINAL PREGNANCY.¹

BY

WILLIAM H. HUMISTON, M.D..

Cleveland, Ohio.

(With illustration.)

L. J., aged 34 years, had been married sixteen years and had given birth to two children, the youngest being 8 years old. She had had two miscarriages prior to the birth of the last child. Her early menstrual history shows no divergence from the normal. In later years she had been troubled with dysmenorrhea and pain in the left ovarian region, but her general condition has been excellent.

The last normal menstrual period began on January 18, 1901, and continued throughout the usual length of time, without any deviation from the course of previous epochs. There was no appearance of the menses either in February or March, but a week after the expected period of the latter month the patient

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"took something." For ten days there was a bloody discharge, but on March 28 the patient had a severe pain in the left groin and was faint and nauseated. At this time a probable diagnosis of gallstones was made, but a second physician decided that a pregnant uterus was misplaced to the left and an abortion was threatened. On April 4 a second and more severe attack occurred, followed by collapse. The patient then was kept in bed till May 12. Two distinct attacks occurred during this period of forced quiet. Pain, nausea, and vomiting with tympanites were the chief symptoms. During one of these attacks one-half gram of morphine was administered before relief came.

The bedside record shows with each attack a rise in pulse rate from 80 to 100 and 120, followed in about twelve hours with a rise in temperature from the normal to 100° or $100\frac{1}{2}^{\circ}$, with rapid declination of pulse rate and temperature to the normal. The nurse was discharged on May 12, and the patient rapidly improved in general condition. The bloody discharge from the vagina, which had occurred almost continually through the month of April, had ceased.

During the first week in July she came from her home to Cleveland to recuperate. On July 9, at ten A.M., the fifth distinct attack of pain occurred. At this time the patient sank into collapse. The history and clinical picture made the diagnosis of extrauterine pregnancy with internal hemorrhage positive. Dr. F. S. Clark, who first saw the patient, called me to operate.

I found the patient in an extremely low condition, with sighing respiration, blanched skin, cold extremities, and small, feeble pulse whose rate was scarcely distinguishable at 170 to 188, temperature 95° . The operation was quickly arranged for in her sister's home.

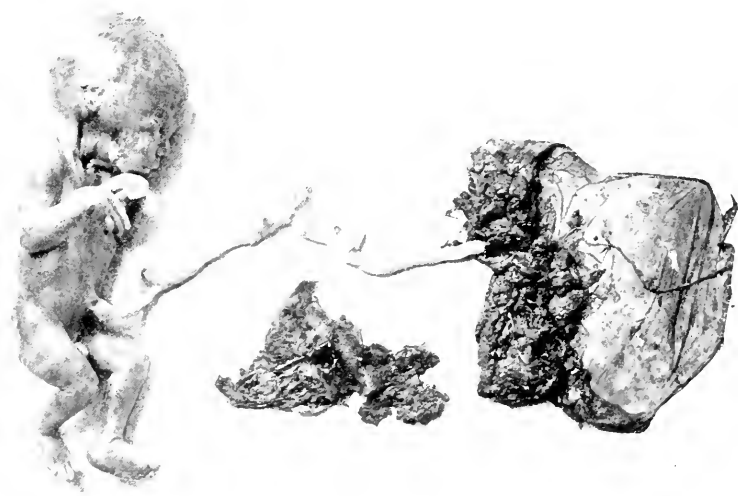
Under anesthesia the diagnosis was confirmed, the body of the uterus being easily distinguished from the large tumor mass, and in the latter fetal parts could be felt to the left and posterior to the uterus. Such, in brief, was the typical course of this case; and now I desire to call your attention to the value and necessity of certain operative procedures.

As soon as partial anesthesia was induced the introduction of salt solution beneath the breast was begun, and when the patient was taken from the table two quarts had been given and most of it had already been absorbed.

The placenta was found attached to the posterior surface of the broad ligament and to several coils of small intestine in the

cul-de-sac. The posterior wall of the gestation sac was coherent to the colon and small intestines. In the abdominal cavity there were clots, in various stages of organization, representing the different periods of previous ruptures. Ligatures were immediately placed on the ovarian artery and a clamp applied over the tube and broad ligament along the left side of the uterus.

With the checking of the main blood supply the fetus and the various blood clots were removed from the pelvis and the placenta was carefully detached. The posterior wall of the gestation sac was carefully handled with a view to leaving it as a shield for the general abdominal cavity. No attempt was



Tubo-abdominal pregnancy.

made to clean the general peritoneal cavity, but as much salt solution as the space would contain was poured into it and left when the stitches were tied.

The posterior wall of the gestation sac was sewed to the upper portion of the wound in the abdominal wall, and the cavity of the gestation sac was packed with gauze to control the general oozing. The patient's condition when first placed upon the table was very precarious, but with the absorption of the salt solution beneath the breast and the use of strychnine sulphate, one-fifth grain, the pulse gradually grew stronger and fuller, and at four P.M. was 140 in rate.

One-half pint of salt solution was given per rectum every hour, one-thirtieth of strychnine every two hours, and four minims of fluid extract of digitalis each four hours hypodermatically. At seven P.M. the pulse again began to waver and again a subcutaneous injection of two quarts of salt solution was given, and at midnight the pulse was 160 and rapidly growing stronger and slower. Twenty-four hours after operation it was 128 and never again went above this point. The stomach was irrigated thirty hours after the operation, and undigested food with a large amount of raspberry seeds were removed. The nausea ceased and nothing further complicated convalescence.

The rapidity with which this patient responded to the use of submammary injections of salt solution when the conditions seemed most hopeless, and the ease with which the general peritoneum cared for the blood and clots that were left in the cavity, are the two important facts to be deduced.

To one other point must I call your attention: however hazardous seems the attempt, my own conviction is that all of the placenta should be removed in every case. The danger of intoxication or general sepsis from this (usually sloughing) mass is avoided and the convalescence shortened.

And, lastly, I have seen many accidents happen because of the early removal of the gauze packing. My own practice is to wait until Nature has made a firm wall about it and the granulation tissue which early permeates the gauze has sickened of its work and died.

536 THE ROSE BUILDING.

TUBAL PREGNANCY:

CASE OPERATED IN THE EIGHTH WEEK, IMMEDIATELY BEFORE
THE OCCURRENCE OF RUPTURE.¹

BY

MARCUS ROSENWASSER, M.D.,
Cleveland, Ohio.

(With two illustrations.)

CASES of tubal pregnancy in which the diagnosis is made and the operation performed before rupture are becoming more fre-

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

quent from year to year. I report the following case, not on account of its rarity, but because the specimen obtained is so well preserved and because of the excellent photographic illustrations.

Mrs. F. C. J., aged 24 years; married two years; never pregnant; menses regular, scant, last appearance November 29, 1900. Excepting an attack of peritonitis four years ago, she had enjoyed good health until last May, since which time she has had occasional colicky pains in the hypogastrium. During the past four months the pains have been more frequent; during the last

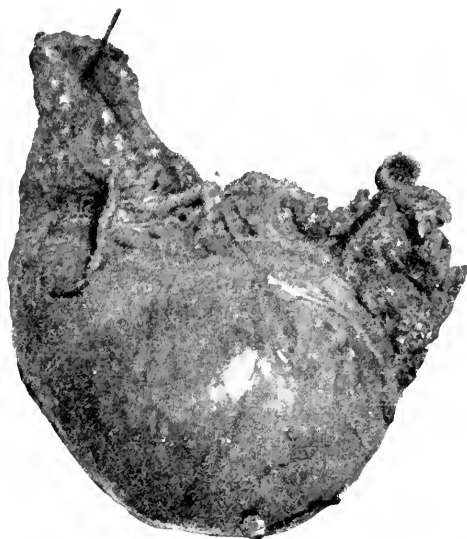


FIG. 1.—Extrauterine pregnancy in unruptured tube.

five weeks they have grown worse, compelling her to remain in bed. In December and January she failed to menstruate. Besides the pain she suffered from daily nausea, vomiting, and painful defecation; there has been no fever. Morphine had been given for relief.

I saw her on February 8, 1901, at the request of her physician, Dr. C. J. Aldrich, who kindly furnished the history as stated. Locally there was a painful, fluctuating, cystic body posterior and to the right of the uterus, of the size of a small orange; the uterus was in the left side of the pelvis, soft and flabby, smaller in size than would correspond to a pregnancy of two months. There was no vaginal discharge. Though my diagnosis was tubal pregnancy, I could not exclude hydrosalpinx. I advised imme-

diate operation. Abdominal section was performed on the following day.

When the peritoneum was reached in making the parietal incision, it appeared as blue as is usual in cases of ruptured tubal pregnancy. The omentum was injected; there was a slight amount of free blood in the pelvis. The purple-colored cyst was loosely adherent to the right pelvis, but when relieved and



FIG. 2.—Extrauterine pregnancy in unruptured tube. Tube laid open to show fetus.

brought into the incision it proved to be the left tube, of the size and shape of a medium Bartlett pear, tense, ready to burst; the abdominal end was apparently closed; judging from the appearance of the fimbriae, the closure was very recent. A translucent cyst the size of a hickory-nut escaped, self-enucleated from the left ovary. The tube was removed unbroken. The gap in the ovary was closed with one stitch. The right ovary was healthy, but surrounded with very firm adhesions, which

were not disturbed. The appendix vermiformis was injected and thickened at the distal end: it was removed. The abdominal incision was closed without flush or drainage. Recovery uneventful.

I am indebted to Drs. R. G. Schnee and Walter Lincoln for the preparation of the specimen and photographs.

Report on the Specimen by Dr. Walter Lincoln.—The mass presented for examination resembles in size and general shape a fair-sized Bartlett pear. It measures 8 x 6 x 5 centimetres and 16 centimetres around its greatest convexity. It represents an unruptured Fallopian tube.

The *uterine end* of the tube for 3.5 centimetres is slightly thickened and larger than normal. The tube then becomes suddenly distended and greatly enlarged, and forms a mass with the approximate measurements given above.

At the *outer extremity* of the tube the fimbriated extremity is seen. This is very short. The fimbriae are still separate from one another, and the abdominal ostium appears to be patent. It leads directly into the interior of the mass and is there blocked by a layer of blood clot presently to be spoken of.

Mesosalpinx is almost obliterated. It is thickened and gives attachment to numerous remnants of firm velamentous adhesions. A small, translucent cyst with thin walls is seen in the mesosalpinx. On the convexity of the tube, on one side, remnants of firm velamentous adhesions are found.

On opening up the tube, cutting from its free border perpendicularly down to the lower wall at the attachment of the mesosalpinx, an irregularly spherical cavity 3.25 centimetres in diameter is disclosed. This cavity contains a fetus 2.5 centimetres in length, attached to the wall of the cavity by the umbilical structures. There is absolutely no doubt that this is a true fetus, as the head, ears, eyes, and various members can be identified.

The inside of the fetal sac is movable and glistening, and slightly irregular from the projection or bulging into it of numerous small bosses.

Considering the fetal sac as a cavity in the interior of the tube, its walls may be said to consist of:

1. An internal: a delicate, thin translucent membrane easily peeled away from the next external coat and representing evidently the amnion.

2. An intermediate: a dark-brown layer made up of what is

apparently, microscopically, blood clot. This layer is of irregular thickness, varying from 3 centimetres in some places to almost nothing at one place where the whole cyst wall is translucent.

3. An external: a fibrous wall made up from the original tubal structures. This is about 1 millimetre in thickness. No break is found at any point in this coat, and the clot internal to it has had no communication with the exterior, except possibly at the site of the abdominal ostium of the tube. It is evident that the fetus and its surrounding blood clot are still contained in and enveloped by the proper tubal structures.

Diagnosis, unruptured tubal pregnancy; hemorrhage into the tube.

REPORT OF A CASE OF RUPTURED TUBAL PREGNANCY.

BY

WEBB J. KELLY, M.D.

Piqua, Ohio.

To come before this Association and report a single case of ruptured tubal pregnancy in which there was nothing particularly abnormal in the pathological condition would appear to be uncalled for and unnecessary. At the same time, when we consider the urgency of something being done in these cases, the lack often of previous proper diagnosis, and many times our own unpreparedness to operate, they become very interesting, especially so to the operator. They oftentimes not only press the operator to his extreme limit to know what to do, but they try the nerves of the best operators. The following case would probably rank as one of the latter.

In 1899 I was summoned by telephone some forty miles distant to see a lady suffering from "nervous prostration"—at least, that was the diagnosis of the attending physician. On my arrival I found Mrs. R., aged 26; married; mother of one child 11 months old. The patient was almost pulseless and in a state of collapse.

From the husband I elicited the following history: She failed to menstruate eight weeks previous to my being called. Had menstruated twice since the birth of her baby. Two weeks

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

ago she spent the day in the country, and on returning in the evening, instead of stepping out of the buggy, the ground being muddy, she jumped to the pavement. She at once experienced very severe pain in the right ovarian region, sank to the sidewalk, and fainted. She was carried into the house and placed on a lounge, where she received medical attention, and it was some time before it was thought prudent to even move her into bed. She remained in bed for a day or two and then went about the house doing the ordinary housework. There was no flow during this time. Four days before I was called she stooped over to lace her shoe and experienced the same feeling as when she jumped from the buggy. She fainted, falling over on the floor, where she was found by her husband, who picked her up and placed her in bed. Here she had remained ever since. There had been no visible hemorrhage at any time, no flow. She would occasionally show signs of collapse and pass into a semi-conscious state, from which she would with difficulty be aroused. This was the basis for the diagnosis of "nervous prostration." Of all the diseases that will be called upon to answer for its sins, I think this so-called "nervous prostration" will head the list.

The pulse at time of examination was barely perceptible; the cheeks blanched; the gums white; features pinched—in fact, it looked as if she might die at any moment. The abdomen appeared to be full, especially on the right side; the uterus was not enlarged, but upon the right side could be felt a bulging mass.

Here I was, forty miles from home, without an instrument, none to be obtained nearer than eighteen miles, and a woman dying from hemorrhage from a ruptured tubal pregnancy. Stepping to the telephone, I had this friend pack up what he had and send it by messenger. While awaiting his arrival we prepared a room in which to operate. When he arrived it was eight o'clock at night; and when I unpacked the valise I found he had forgotten to send me any needles. Some time was lost in attempting to sterilize a couple that were obtained from a local physician's pocket case.

Placing the patient on the table, she was given just a little ether—I can assure you there wasn't need for much. Hastily opening the abdomen, I found the hemorrhage. And when I say it was found I mean it was in every conceivable sense. Any one who has seen the fearful and frightful hemorrhage of these

cases can realize my position, and I don't believe any one else can. It simply poured out, and more than once I was fearful that she would be dead before I could complete the operation. Hastily pushing my hand down into the cavity, I grasped the bleeding part, after which it was clamped on both sides until a ligature could be passed and the tube removed.

During this time the husband flushed the abdominal cavity with a hot saline solution. This was done so thoroughly, and I might say so profusely, that we were literally standing in blood. What few large clots remained were scooped out and the abdomen closed with silkworm gut. I failed to notice the fetus, which was probably seven weeks old, but I have no doubt it was thrown out during the operation. She was placed back in bed, surrounded with hot-water bottles; an infusion of saline solution used. Hypodermatic injections of strychnia were given, and after a time she rallied.

In the course of a few days a large stitch abscess formed, the infection coming from one of the needles. It was thoroughly opened and irrigated. About the seventh day the glands of the neck commenced to enlarge and become tender. The axillary, cervical, in fact the glands all over the body became infected. While the doctor was dressing the abscess on the morning of the tenth day he found the fluid did not reappear at the opening, but, on the other hand, seemed apparently to enter the bowels, thereby causing them to move. The next day there was oozing of fecal matter through the opening, and when he was irrigating the abscess had the same experience as on the previous day, the bowels moving. This state of affairs continued for some time, the opening becoming smaller and smaller until it finally closed. She finally made a complete recovery, enjoys splendid health, is now pregnant, expecting to be confined in November.

It seems to me there are a few things in this case of especial interest, *i.e.*: The length of time intervening between the time of rupture and the operation; the amount of blood lost; the operation in collapse; the formation of a fecal fistula with a spontaneous cure; recovery after such thorough infection; her present pregnancy being so far advanced without any perceptible trouble from the adhesion of the bowels to the peritoneum.

I have purposely avoided giving in detail the medical treatment of this case, as it would be tedious and probably uninteresting to this body.

GALVANISM AS A REMEDY FOR UTERINE HEMORRHAGE.¹

BYEDWIN WALKER, M.D., Ph.D.,
Evansville, Indiana.

It is not without some misgivings that I present to you a paper on the use of galvanism in uterine hemorrhage. The views on the use of electricity in gynecology have been so extreme and divergent that it is difficult to ascertain the exact truth. The strong prejudice of surgeons against this remedy is not without foundation, as the results from treatment by electricity in gynecology have fallen far short of the claims of its friends, so that most of us are inclined to entirely disregard even the little that has been accomplished. Apostoli, more than any one else, has studied the subject carefully and scientifically; and while his conclusions are by no means universally accepted, still they have commanded the respect of the profession by their accuracy and honesty. His methods are often severe, and even dangerous. When his work was first published, in common with others in this line I gave it an extended trial, and, like others, have found it for the most part disappointing, in many instances extremely painful, and in some dangerous. It was not long before I came to the conclusion that galvanism could not supplant surgery in a large class of cases, as we were not sure of its results, and it was on the whole not less dangerous. I believe, however, it has a place in our therapeutics; and although it is not a large one, there are cases in which it will give greater relief with less danger than any other remedy. I have found it frequently valuable in cases of uterine hemorrhage.

Lest I be misunderstood at the onset, I wish to clearly state my position. Uterine hemorrhage being only a symptom, its cause should be sought and removed, if possible. If it is endometritis the curette is the remedy; if a fibroid, it should be removed by enucleation or hysterectomy, according to the location and gravity; if due to ovarian disease, surgical interference is indicated. I would not think of using galvanism where the diseased condition could be met with clean surgical interference.

¹ Read before the American Association of Obstetricians and Gynecologists, at Cleveland, Ohio, September, 1901.

This leaves a number of cases, the most of which would come under two classes. The first, those mild cases which do not endanger life or health, such as mild cases of endometritis or fibroids which produce no other symptom except the excessive flow. The second is quite a large one and embraces those which have some other disease or condition which contraindicates radical measures.

Many mild cases suffer little inconvenience from local trouble, except either excessive or long-continued flow of blood. If they have endometritis it is slight and causes them no inconvenience. Many fibroids, even of considerable size, are painless, and a physician is consulted only on account of the hemorrhage. Such patients will rarely submit to a radical surgical operation, and it is these cases which can be relieved, and in a considerable portion cured, by galvanism. I do not mean that fibroids can be removed by it. I have never seen a fibroid materially reduced in size by even strong currents, but hemorrhage is controlled and the patient at least rendered comfortable and symptomatically well. For fifteen years I have employed it in these cases and failures have been extremely rare.

Of the severe symptoms extreme anemia is probably the most frequent. These cases have suffered from such excessive loss of blood that they are unfit to undergo any severe ordeal. In some of these I have had the hemoglobin sink as low as 35 per cent and red corpuscles to 1,000,000. Such patients stand an operation poorly, and galvanism is here valuable in that it can control the hemorrhage until the patient can be put in suitable condition to undergo a hysterectomy, and many of them are rendered so comfortable that they will not care to go to that extreme. There are many cases of which the following is a type: The patient was 43 years of age and had suffered with hemorrhage for several years. She had become so much reduced that she was constantly weak, suffered with palpitation of the heart, and was extremely pale. Her hemoglobin was 35 per cent and red corpuscles 2,000,000. She was the mother of seven living children, and did not feel, in her condition, that she could afford to run any risk, and therefore declined to consider a radical operation. She had a fibroid extending above the umbilicus. A treatment extending over two weeks, in which eight applications of galvanism were made, completely relieved the patient, and now eight months or more have passed and she has suffered no inconvenience, has gained in strength and flesh,

and considers herself entirely well. She looks the picture of health. In cases with such a blood condition the mortality would certainly be very high from hysterectomy, and I believe in this case galvanism was safer treatment, and she may not require any other, but if she does her condition will be much more favorable.

We are often consulted by patients whose local trouble is secondary in importance to their other graver malady. For instance, a patient suffering with an advanced form of tubercle of the lungs or intestines, or with an advanced organic disease of the heart or serious kidney lesion, is not a favorable subject for operation. There are many cases, too, who have grave diseases of the stomach and intestinal canal. In a large proportion of these cases, if an operation were done and the patient survived, she would be very little better than before. Except stopping the hemorrhage, her condition would be just as bad.

There is also a large class of nervous diseases, or degenerations which are entirely independent of the genital lesions, in which it is a great mistake to do a radical operation; for even if the patient survives it, she will not be benefited, but, on the contrary, is sent more rapidly down the road to grave neurasthenia or dementia. To my mind the saddest chapter in the history of gynecology is the treatment of nervous cases; operations based on the theory of reflex origin of disease, by those ignorant of the pathology of these diseases, led to disaster in most cases. I hasten to add, however, that this is past history and these mistakes have led to the much-needed reform.

I wish particularly to impress at this point the necessity of the careful diagnosis of all ailments of each patient, and, while we accurately ascertain the local departure from health, we also take into consideration the diseases of all other organs. By this means we are able to decide on a plan of treatment best for each individual patient. Operations which may relieve some local disease, while the patient, as far as her general health is concerned, is as bad or worse than before, do not add much to the credit of the gynecologist. These failures are generally due to insufficient study of the case. We should not allow the patient to hurry us. Frequently the gynecologist is consulted in his office. An examination is made which takes probably fifteen or twenty minutes, or even more; then an opinion is given as to what should be done in the case. This, in most instances, is not sufficient observation, and we would do ourselves greater justice

if we would insist that these patients remain under our observation one or two weeks, if it is necessary, in order that we can fully fathom everything that is wrong. I have in the last few years pursued this plan habitually, and often changed my opinion of the case entirely after an observation for a few days; and I believe the reason patients go from one specialist to another, getting a different opinion from each, is due to the fact that these men do not insist on having the requisite time necessary to make repeated examinations and to have a correct knowledge of all secretions and excretions, temperature, blood—in fact, avail themselves of all modern methods of examinations and observations in order to correctly diagnose these cases.

The method I have employed in the last few years in the application of galvanism for uterine hemorrhage has been quite simple. I have abandoned the strong current, as recommended by Apostoli, because it is painful and unnecessary. Mild currents can be borne in nearly all cases. I formerly measured the current by a milamperemeter, but have been governed of late by the feelings of the patient. I use an intrauterine platinum electrode three inches long, and the shaft of the instrument is insulated and attached to the positive pole. A flat metal electrode about four by eight inches, covered with moistened absorbent cotton, is attached to the negative pole and placed over the abdomen. The current is then turned on until a distinct burning sensation is felt on the abdomen. Usually ten minutes is long enough for an application, but in some rebellious cases I have used it as long as thirty minutes. Applications are made at intervals of from three to six days, according to the effects, and it is rarely necessary to make more than eight applications. If a decided improvement is not made in three or four applications, some other treatment should be instituted, but this I have rarely found necessary. The patient is always given a bichloride douche, and every aseptic precaution is followed in regard to the instruments used.

In conclusion, I would repeat, galvanism does not replace surgery in the management of uterine hemorrhage, but in some mild cases galvanism has been successful in controlling the hemorrhage, and to that extent it is a benefit to the patient, and those suffering from other grave maladies can be treated by it more safely than by surgical interference.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

FOURTEENTH ANNUAL MEETING, HELD AT CLEVELAND, OHIO,
SEPTEMBER 17, 18, AND 19, 1901.

FIRST DAY—*Morning Session.*

The Association met in the Banquet Hall of the Hotel Hollenden, under the presidency of Dr. W. E. B. DAVIS, of Birmingham, Alabama.

An Address of Welcome was delivered by Dr. C. H. HOOVER, of Cleveland, on behalf of the local medical profession, which was responded to by President Davis.

DR. WILLIAM H. HUMISTON, of Cleveland, read a paper entitled
AN INTERESTING CASE OF TUBO-ABDOMINAL PREGNANCY.¹

DR. MILES F. PORTER, of Fort Wayne, Ind., followed with a paper on

ECTOPIC PREGNANCY IN A BICORNATE UTERUS.²

The discussion on these two papers was opened by Dr. EDWARD J. ILL, of Newark, N. J., who sustained Dr. Humiston in the treatment of his case. He argued against a prolonged operation in such cases, and stated that the quicker it was done and the abdominal cavity walled off the better the chance for the patient. He agreed with the essayist as to the quantity of normal salt solution that these patients would receive and absorb. The assistant who administered the normal salt solution should know how to massage the parts, as this assisted materially in the absorption of the fluid.

DR. EDWIN WALKER, of Evansville, Ind., said that we were in the habit of using salt solution in the abdominal cavity too frequently. The indications for its use should be borne in mind. Normal salt solution was used for one or two things. First, mechanically, to wash out débris, as in Dr. Humiston's case; in a great many cases its use was unnecessary, although the peritoneum would take care of it. Second, it is used to promote rapid absorption; yet he thought in most cases where we had débris of any kind in the abdominal cavity it was better not to hasten absorption, because if there was any infection or toxins or ptomaines they would be more rapidly absorbed to the detri-

¹See original article, p. 698.

²See original article, p. 692.

ment of the patient. He could not see any reason for the use of salt solution in the case of Dr. Humiston, because there were organized clots which could not have been affected by the salt solution. As these clots became organized they became drier and were absorbed that way, and the use of salt solution would only aid in the absorption of any septic material that might be present. He maintained that it was a mistake to wash out the abdominal cavity in all cases with normal salt solution. The cavity could be wiped out and kept clean by means of dry gauze, and if it was not infected this means was safe. If it was infected we did not promote the absorption of what we did not want absorbed.

DR. M. ROSENWASSER, of Cleveland, commended Dr. Humiston's treatment by subcutaneous saline solutions, but as to the use of the solution in the abdomen he expressed doubt as to its actual value. He had used it often in this way and had not seen any marked beneficial results either in the condition of the pulse or the patient by leaving the solution in the abdominal cavity. He could readily see how a subcutaneous solution could be readily absorbed by the connective tissue. It was a question whether the salt solution was as easily absorbed in a peritoneal cavity that had been exposed, as in Dr. Humiston's case, to a pathological state, so that whatever benefit this patient received must have been due to the absorption of the saline solution in the connective tissue, as well as by the mucous membranes, and its injection into the rectum. In packing the extraperitoneal cavity that is left, he had within the last few years ceased using iodoform gauze and was now using sterile gauze instead. He thought the use of the former in a patient so low as that of Dr. Humiston added risk to the patient's condition on account of the possible absorption of iodoform. For several years he had not been in the habit of disturbing the gauze packing or drainage for at least a week or more, and he heartily approved of the practice of leaving gauze in eight or ten days. Iodoform gauze should be relegated to the past.

DR. HERMAN E. HAYD, of Buffalo, asked: Was it necessary to wash the abdominal cavity after operations of this character, or not, in the hope of getting rid of detritus and foul stuff, or by leaving salt solution in the peritoneal cavity for absorption did we assist the circulation? We could approach the subject from two standpoints. It was good to wash the abdominal cavity out, and it was likewise a good thing to leave the salt solution in this cavity because it would be absorbed. He did not agree with Dr. Rosenwasser that the fluid was not absorbed. He had filled the peritoneal cavity with normal salt solution, leaving two stitches open, and in an hour and a half afterward, when the patient had died and a postmortem was made, it was found that the salt solution had been absorbed.

DR. ROSENWASSER wished to be understood as saying that the fluid was not *readily* absorbed when the peritoneum was in a

pathological state. It was not his desire to convey the impression that the solution was *not* absorbed.

DR. J. HENRY CARSTENS, of Detroit, said that when we had cases of extrauterine pregnancy or similar conditions we desired agglutination of intestines and omentum all around, so as to keep the space in one particular locality. Nature did this by throwing out a plastic exudate. If this exudate was diluted in any way there would be no adhesions formed. If normal salt solution were thrown into the abdominal cavity, it would tend to liquefy the plastic exudate which Nature had thrown out, and hence prevent to a great extent agglutination and walling in of the space so much desired. It was therefore bad practice, in his opinion, to throw in salt solution and leave it there. In the present state of our knowledge it was known that any of these cavities could be cleaned out just as well with sponges as by washing them out. Two quarts of salt solution thrown into the rectum would be absorbed just as quickly as it would be if thrown into the peritoneal cavity, and the same effect was obtained from it. When given in this way it did not liquefy and make ineffective the plastic exudate thrown out by Nature.

DR. JAMES F. BALDWIN, of Columbus, O., said he had been very much disappointed in the use of salt solution, whether injected into the subcutaneous tissue or left in the abdominal cavity. Within a few months he had operated for a physician in Columbus on a case of ectopic pregnancy, the hemorrhage having continued for about two weeks, so that the woman was practically moribund when brought to the hospital. He used salt solution subcutaneously at the beginning of the operation, but did not use it in the abdominal cavity. He cleaned out the clots fairly well and rather hastily, closed the abdomen, using salt solution in the subcutaneous tissue. The solution was used at intervals of a few hours, but the patient died. Its absorption, however, was evident. The physician was disappointed because he did not wash out the abdominal cavity and leave it full of salt solution. Two weeks later he was called again by the same physician to see a case of ruptured ectopic pregnancy, the rupture having occurred two days previously. The abdomen was found full of blood. Salt solution was used subcutaneously in this case promptly. The abdominal cavity was washed out as rapidly as possible and left full of salt solution; it was used again subcutaneously later, and she died as the first patient did. He had used salt solution repeatedly, and it seemed to him absolutely inert. He had never seen it produce one particle of benefit.

DR. CHARLES GREENE CUMSTON, of Boston, said that, given the condition a patient would be in when an operation was undertaken for ruptured tubal pregnancy, he did not think either the peritoneal cavity or the subcutaneous cellular tissue had a sufficient degree of vitality to be able to absorb the solution in the majority of cases. Furthermore, in injecting salt solution

into a cavity whose walls were the result of a pathological product, he did not believe that the walls of that cavity would absorb the fluid. It had been his experience that salt solution had always been unfavorable, whether given subcutaneously, by rectum, or intra-abdominally. The only value he could see in salt solution was after a prolonged intra-abdominal operation where the intestines had been exposed, where the loss of heat had been great, and the physician desired to introduce a certain amount of heat into the abdominal cavity.

The use of gauze sponges in wiping out *débris* should be extremely limited, because gauze would remove the epithelial covering of the peritoneum of the intestine and of the parietal peritoneum, and he believed it was a fertile cause of adhesions after operation. If stimulation was needed he relied on rectal injections of coffee and brandy, with the free use of strychnine subcutaneously, as well as musk and camphor. The latter were two of the most powerful stimulants we had, and were, in his opinion, to be greatly relied upon. He had not employed iodoform gauze for the last five years.

DR. EDWIN RICKETTS, of Cincinnati, had been taught that filling the abdominal cavity with warm water would overcome shock. He had given this up. Later, when the craze came for the use of saline solution in the abdominal cavity, he resorted to it, and he had been greatly disappointed. The results of its subcutaneous use had been over-estimated. As to wiping out the abdominal cavity with a sponge, if this was done in a vigorous manner it would result disastrously in many instances. The gauze sponge should be used lightly, so as not to create any friction of the peritoneum. We had not any remedy as yet that was equal to the judicious use of strychnine to overcome shock.

DR. HUMISTON, in closing the discussion, stated that the abdominal cavity in his case was almost completely filled with blood up to the border of the liver, and if he had attempted to handle the intestines, and had delayed the operation the length of time it would take to cleanse the abdominal cavity of blood, he felt sure that he would have lost his patient. He did not believe in irritating the peritoneal surfaces with dry gauze, as it injured them and would often prove disastrous. He thought the use of salt solution was indicated in his case.

As to iodoform gauze, he rarely used it as such. It was all wrung out of hot sterile saline solution, so that the excess of iodoform was washed out of it. He had never had a case of iodoform poisoning.

DR. PORTER, in closing, said that there was no doubt about the gestation sac in his case being composed of uterine tissue, as the macroscopic and microscopic evidence absolutely proved it. Moreover, there was decidua present, which was positive proof that the gestation had taken place within uterine tissue.

DR. CHARLES GREENE CUMSTON, of Boston, read a paper entitled

A NEW METHOD OF OPENING THE ABDOMEN IN GYNECOLOGICAL SURGERY.

The first incision is made at the upper limit of the pubic hair transversely, following a line parallel to the upper limits of the pubic hair, making it about a centimetre below the base of the hairy triangle. The skin and cellular tissue are cut through until the fascia is reached; the upper border of the wound is then rapidly dissected off the fascia by a few snips of the scissors and is then held up by a retractor. The lower border of the wound is also dissected off and drawn down by a retractor so that the incision becomes elongated, and if proper traction is made on the retractors by the assistant a rectangular wound can be made sufficiently large to incise the fascia vertically to the extent of five or six centimetres.

When incising the fascia it is better to do so over the inner border of one or the other rectus; and when the belly of the muscle has been freely exposed its inner border is found and the whole muscular mass pushed aside, thus exposing the thin fascia underneath, without wounding the fibres of the muscle in the slightest. After the peritoneum has been opened, the retractors holding the skin flaps back can be removed and ordinary abdominal retractors can then be employed.

In closing the incision the author uses fine, dry, sterilized catgut for the peritoneum; dry, sterilized kangaroo tendon for the fascia, and interrupted silkworm-gut stitches for the skin. In a second method, devised by Hartmann, of Paris, the curved incision of the skin, with its convexity directed downward, is begun on the left at the level of the external opening of the inguinal canal and is carried to the opening of the right canal, but directed in such a manner that the apex of the incision just barely sweeps by the symphysis pubis. This incision includes the skin, subcutaneous cellular tissue, and the anterior aponeurotic layer of the recti. As soon as the aponeurosis has been cut through the muscles are seen, and, seizing the fascia with a strong pair of toothed forceps, it is rapidly dissected upward off the muscles.

The flap thus formed is taken in the bite of a pair of toothed clamps and turned back toward the umbilicus, thus freely exposing the recti from the pubis to within four or five centimetres of the umbilicus. Both recti as well as the pyramidal muscles are separated vertically; the subperitoneal fat and the peritoneum are opened at the upper part of the incision, so as not to wound the bladder, and then the incision is continued downward until in the neighborhood of the pubis, as in ordinary abdominal section.

To close this incision, unite the peritoneum with a running suture of fine catgut, and then suture recti and pyramidals. The

aponeurosis of the recti is brought carefully together by a running suture of kangaroo tendon, while the skin and fat are brought together with interrupted silkworm-gut sutures.

DR. EDWIN RICKETTS, of Cincinnati, read a paper on

SARCOMA OF THE BREAST,¹

and reported three cases.

DR. CHARLES GREENE CUMSTON, of Boston, favored early operation in cases of tumors of the breast. That recurrence would not happen after three years was erroneous. He recently removed a small mass of axillary glands in a woman who had had a Halsted or similar operation performed nine years previously for carcinoma. Recurrence took place, and he removed indurated glands about the size of a pea. These glands would not have been discovered except for the fact that the patient injured her shoulder and so was examined.

Chronic interstitial mastitis was more frequently encountered in unmarried women. Its pathology was not clear, but in all cases there was a fertile ground for the ultimate development of malignant neoplasms.

DR. J. HENRY CARSTENS emphasized the importance of early and immediate removal of any tumor of the breast. In malignant cases he did not have great faith in the ability of any surgeon to effect a permanent cure.

DR. THOMAS B. EASTMAN, of Indianapolis, said that there were two points which occurred to him in the consideration of malignant growths of the breast. Physicians were too prone to search for enlarged glands, and recent investigations had shown that the small glands might be full of carcinoma cells, while the larger glands might be quite free from them. If search was made for enlarged glands the small as well as the large ones should be investigated. Again, we were disposed to look in the axilla for all enlarged glands, and felt that if we removed all of these glands in the upper border of the breast we were safe; but we lost sight of the fact that the glands on the inner side of the breast perforated the intercostal spaces and joined with the lymphatics in the anterior mediastinum, and that here we had reason for the very profound depression which was noted in these cases, and it seemed to him it was well to emphasize the fact that we should look for those glands on the inner side of the breast as well as those which pass to the axilla.

DR. JOHN C. SEXTON, of Rushville, Ind., was constrained to believe, from a limited experience, that sarcoma of the breast was not very rare. He recalled two cases. In one, of round-celled sarcoma, there was rapid recurrence, with metastasis in the ovary of the same side. There was recurrence in the breast after a third operation; then the patient was treated with lymph toxins, which did some good locally, but the sarcoma continued

¹See original article, p. 688.

to develop in the periphery and away from the point of inoculation. The patient died. The other case was one of the ordinary spindle-celled sarcoma, and the disease recurred promptly after operation.

DR. MILES F. PORTER, of Fort Wayne, Ind., said that every suspicious tumor of the breast required operation, and any operative procedure which stopped short of the complete removal of the breast, with thorough cleaning out of the axillary glands, was not good surgery.

DR. HUMISTON thought that the statement of the last speaker was too radical. Small benign tumors of the breast in young women could be removed readily by cocaineization. Sections could be taken out and submitted to a competent pathologist. If the tumor proved to be malignant the surgeon could proceed and make a complete operation.

DR. E. GUSTAV ZINKE, of Cincinnati, had not only seen benign tumors of the breast years ago, but he knew them to exist in those patients to-day, and the women were none the worse for their presence. In communicating with his fellow-practitioners he had been told that they had seen similar cases; at the same time he asserted that it was exceedingly difficult for any one to say beforehand, or before the tumor was in one's hands or a section of it under the microscope, what the actual nature of it was, consequently the physician was placed in an embarrassing position at times. Such cases needed watching, and so long as the tumor did not grow and was not painful it might be left; but the minute it assumed any degree of tenderness or showed a tendency to grow, the sooner it was removed, and the breast with it, the better for the patient.

DR. JAMES F. BALDWIN asked whether it was proper to speak of those cases in which there were secondary growths so many years afterward as recurrencees. Was it proper to speak of growths occurring elsewhere as metastases? Was it not true that in these cases we had simply two points of primary growth? For instance, he removed a sarcoma of the ovary with a long pedicle. There were no adhesions. Seven years afterward the woman returned with a sarcoma of the kidney. He did not consider this a metastasis. It was not a recurrencee, but a brand-new sarcoma of the kidney. He likewise removed a sarcoma of the right testicle, and months afterward a sarcoma developed in the left kidney.

FIRST DAY—*Afternoon Session.*

GALVANISM AS A REMEDY FOR UTERINE HEMORRHAGE.¹

DR. EDWIN WALKER, of Evansville, Ind., read a paper on this subject.

DR. C. C. FREDERICK, of Buffalo, thought that electricity had,

¹See original article, p. 708.

to a large extent, been replaced by surgical procedures, because the results that had been promised by men who were enthusiasts in the use of it were not borne out. It was a well-known fact that a certain proportion of women, who apparently had very little disease of the endometrium, would be benefited for a few months by curettage and other lines of treatment, but not any longer than that time, and even repeated curettage would not bring about permanent results. In that class of cases electricity, if used persistently, might be of some benefit.

DR. HERMAN E. HAYD had used electricity for a good many years and had spent several months with Apostoli. When he took a retrospect of the amount of good that had been done with it in the treatment of pelvic troubles, and compared it with the amount of harm that had been wrought, he felt that it would have been best if physicians knew nothing about intrauterine galvanization. He saw Apostoli treat a great many cases, and he could frankly say that he was a thoroughly skilled, scientific man and an able diagnostician. But, unfortunately, like many other men who confined themselves to one thing, he was an enthusiast and treated patients day in and day out, month in and month out, who could have been cured by operative measures in half an hour with a couple of weeks' convalescence. Unfortunately, electricity was such a simple remedy in its ordinary application that it had been placed in the hands of ignorant and unqualified men, consequently the limitations that were put upon it by Apostoli had been disregarded by his so-called disciples and followers. While there was a place for it, the dangers associated with its employment were so great that he thought it ought to be given up.

DR. JOSEPH PRICE was glad to hear the remarks of Dr. Hayd in regard to electricity. Many American physicians, at great expenditure of time and money, left their homes, families, and business interests for the purpose of spending time in Paris in acquiring a knowledge of the application of electricity. He had not a single professional friend who was now using this agent. Formerly these machines were used by eminent physicians, who used strong expressions in their previous papers regarding the great value of electricity in the treatment of pathological conditions within the uterine cavity; and some of these men did very good work for a time, in that they benefited their patients. One had gone so far as to say that he would not do laparotomy any more; but to-day this gentleman had given up the use of electricity and had thrown his machine into a corner. Electricity rather stimulated than arrested the growth and development of fibroid tumors.

DR. J. HENRY CARSTENS.—It was very essential to make a correct diagnosis of the cause of hemorrhage. Sometimes the cause was purely constitutional and required only constitutional treatment. In other cases hemorrhage meant malignant disease. He discouraged the use of electricity for uterine hemorrhages, unless

an exact diagnosis was made so that malignancy and certain other conditions could be excluded.

DR. WALKER, in closing, wished to be understood as using electricity in conditions where operation was contraindicated. While Massey and Apostoli had been criticised for going too far in the use of electricity, he thought physicians could go too far the other way. Even surgeons were sometimes very extreme, and he thought there were some surgeons who could profit a good deal by studying their own experience rather than that of others.

DR. HERMAN E. HAYD, of Buffalo, read a paper entitled
RETRODISPLACEMENTS IN YOUNG GIRLS AND UNMARRIED WOMEN;
THEIR FREQUENCY AND BEST METHODS OF TREATMENT.¹

DR. ROBERT T. MORRIS, of New York City, described

A METHOD FOR SUSPENSION OF THE UTERUS.

The abdomen is opened in the middle line by an incision two inches long. The peritoneum over one round ligament is split, and the round ligament is drawn out with a hook for a distance of about three inches. Drawing out the round ligament with a hook makes naturally a long loop. The arms of the loop are sutured together with silk or chromic catgut. This throws the sutured part of the round ligament out of commission and leaves the ligament three inches shorter, more or less. The sutured loop is tucked back into the slit in the peritoneum of the broad ligament and the opening is closed. The operation shortens the round ligaments and allows the uterus to ride easily and elastically in a normal position. Its advantage over the other ligament-shortening operations lies in the securing of union of muscular structures. The surgeon does not have to depend upon peritoneal adhesion, which must be a failure in many cases.

DR. EDWARD J. ILL agreed with Dr. Hayd as to the method which should be used in fastening the uterus, although it might not make much difference which method was used. In speaking of displacements, he mentioned a form of displacement that was not referred to by Dr. Hayd, namely, where there was a shortening of the uterus. This form of displacement was commonly met with, produced an immense amount of trouble in the way of local pains and incapacitating the patient to a certain extent, yet it was not frequently referred to by writers. This form of displacement did not need any such operation as was indicated in the paper of Dr. Hayd, except in extreme cases. The slight forms of displacement would yield generally to massage under ether and dilatation.

DR. WILLIS G. MACDONALD said it was quite possible for a woman to suffer from neurasthenia without it being due to a retrodisplaced uterus. He thought it was possible for a young and anemic girl to have dilatation of the stomach, and still not

¹See original article, p. 634.

have, or even to have, a retrodeviated uterus which did not present symptoms. Unfortunately, all of these cases could not be cured. In dealing with these conditions in young women he was very loath to begin anything like definite local treatment, particularly to undertake any surgical intervention in such cases. He did not believe that a uterus which was retrodeviated or retroflexed presented a condition which produced any very material local symptoms, and if it did produce any considerable group of symptoms it was due quite as much to disease in adjacent organs, as the tubes and ovaries, and he thought physical exploration of the pelvis in these young women should not be undertaken except when extreme measures were desirable. If one carefully considered the histories of patients who were suffering and who had suffered from chronic pelvic inflammatory disease, he would find that many of them were young girls of 16 years of age who had been subjected to minor gynecic procedures. A great many of these young women required changes in their mode of life. It was necessary to take them out of high school. Put them out into the sunshine and air. It was necessary sometimes to treat diseases of the stomach and to begin to do something to give these young women a different nervous make-up than their mothers had before them, and who too frequently had undergone a good deal of gynecic surgery. He had seldom found it necessary to do an operation for the correction of a retrodeviated uterus when it had not been necessary for him to open the abdomen in order to do it. He recalled a group of some half-dozen cases similar to the following: A young woman, scarcely 16 years of age, presented local symptoms and many of the typical features referred to by Dr. Hayd, who had curettage done, who underwent an Alexander operation, both wounds having suppurated in the inguinal region. She was in bed for three months. There was an exudate on each side of the uterus, a full pelvis. It was a case that, under ordinary circumstances, would lead him immediately to proceed to a laparotomy and sweep the pelvis clean of that young woman's genital organs; but because of her youth and the great misfortune which came upon her, which was due to meddling surgery, he resorted to double vaginal incision and drained a pair of abscesses. He had not much faith, however, in that procedure, the probabilities being in favor of its serving as a temporary procedure.

DR. C. C. FREDERICK dissented from the views advanced by Dr. Hayd in regard to the round ligaments in unmarried women. His experience had been that the round ligaments in unmarried women, and those who had not borne children, particularly those that were anemic and neurasthenic and under 25 years of age, were small and attenuated. It was difficult to sew them up in an Alexander operation and make them stay. He had done a good many Alexander operations, and the majority of those he had performed on women who had borne children had been successes. Most of his failures had occurred from doing

the operation on young, anemic, neurasthenic women who had not borne children. If he could hold the uterus up with a pessary he would do so, otherwise he would open the abdomen and do some modified operation.

DR. JOSEPH PRICE said the operation outlined by Dr. Morris was similar to that recommended by Dr. C. A. L. Reed, and was a very good method.

DR. JAMES F. BALDWIN was interested in the method described diagrammatically by Dr. Morris for suspending the uterus, and he had used a modification of it for probably five years. He had supposed that it was the method of Mann.

DR. WILLIAM H. HUMISTON made a trip to Liverpool to see Dr. Alexander perform his operation. Dr. Alexander showed him several cases upon which he had operated, and the operation appealed to him. On returning home he made several of these operations, but by watching the cases he found that in the course of several months the uterus was back in the cul-de-sac. He had not used the Alexander operation since for that reason. If it was a simple case of retrodisplacement of the uterus, this operation was unnecessary. In uncomplicated cases patients get along with a pessary for a period of three months, after which it should be removed, when the uterus would probably stay in position.

DR. HAYD, in closing the discussion, stated that every case of retrodisplacement of the uterus did not require treatment. He assured Dr. Macdonald that his paper was devoted particularly to young girls and unmarried women, and that the symptoms which these patients manifested were due to many other causes than retrodisplaced uteri, many of them being constitutional and local. He did not for a moment believe that Dr. Macdonald thought he would operate on an unmarried girl or a young married woman without having first placed her under the very best environment and hygienic conditions, which would, in all probability, relieve the symptoms in many instances. But having failed to cure the symptoms by all the so-called conservative measures which Dr. Macdonald and others would employ, then operative measures should be considered. To those who did not agree with him that the Alexander operation could be done satisfactorily, all that he had to say was, they had better try it once more or receive instruction from some man who could perform it without difficulty and who did not have ten per cent of failures.

DR. MORRIS, in closing, was asked why he used silk in doing the operation he had briefly described, and he replied that a fine strand of silk was not so likely to split the muscular structure of the round ligament as heavier suture material. He found very little injury to the muscular structure with a small needle and small silk. He had not used silk, however, in all of his surgical work. He began the use of catgut with Dr. Lange in Bellevue Hospital in 1883. He depended on catgut almost exclusively

during his active surgical experience, with the exception of occasional experiments with kangaroo tendon, which was good, and silkworm gut, which was sometimes good and sometimes disastrous. Horsehair and silver wire he used regularly in his bone surgery, and here and there silk. In stomach surgery, as well as in intestinal operations, he used silk for the reason that the gastric juice and sometimes the intestinal secretions digested catgut if the parenchyma of the organ was penetrated. If the sutures were confined to the muscularis and peritoneum there was no danger of injury to the catgut; but if the parenchyma was penetrated, then the catgut might be digested. He lost one case of gastro-enterostomy directly by the catgut being digested. At the postmortem he found that the digestion of catgut was complete, and since that time he had used silk in practically all of his stomach and bowel work.

DR. JOEL W. HYDE, of Brooklyn, N.Y., read a paper entitled

DISEASES AND INJURIES OF THE CERVIX UTERI AND THEIR
TREATMENT.¹

DR. M. ROSENWASSER said, so far as the difference between trachelorrhaphy and amputation of the cervix was concerned, he agreed with the essayist that the former had a limited scope, and that amputation was much better in almost all cases in which there was long-standing disease of the cervix with infiltration of the tissues. The results were much better. Gynecologists were doing less repair work on the cervix than formerly.

DR. JOSEPH PRICE felt that plastic surgery was almost a lost art, and that repair of injuries to the cervix incident to parturition had been grossly neglected. He said that with the death of the staff in the old school at the Woman's Hospital in the city of New York plastic surgery died, and the interest in abdominal surgery at the present time was too great for gynecologists to give the subject that attention which it had received at the hands of Emmet and others. He was satisfied that pathological conditions or injuries of the cervix incident to parturition had been greatly neglected since abdominal surgery had been adopted by not only specialists but by general surgeons. Injuries of the pelvic floor should be repaired early, and he was satisfied that women would be better wives and better mothers if these injuries were recognized early and repaired carefully. Superficial repairs of the cervix were imperfect procedures.

DR. EDWARD J. ILL was glad that the essayist had suggested the operation of repair of the cervix, as such. He called attention to a paper written by Emmet, senior, in which he withdrew the suggestion of repair of the cervix. He was never so astounded in his life as to see an operation withdrawn whose usefulness had been demonstrated so many times by Dr. Emmet. He was glad the essayist had the courage of upholding the operation against so eminent a man as Dr. Emmet.

¹See original article, p. 657.

DR. A. B. MILLER, of Syracuse, N. Y., agreed with Dr. Price as to the neglect of plastic work. A few years ago nearly all gynecological work was done on the pelvic floor and upon the uterus. He was not prepared as yet to say that lacerations were not as great a factor in producing malignant degeneration of the uterus as was originally taught, as malignancy occurred more frequently in cases of laceration. Without lacerations of the uterus it was seldom that a condition of hypertrophy or enlargement of this organ was found. After injuries to the soft parts of the pelvic floor or cervix, patients presented themselves with inflammatory or degenerative conditions consequent to the lacerations. Low vitality tends toward malignant degeneration. On the other hand, every pelvic surgeon had observed that in the cases in which he has repaired the pelvic floor or cervix by the methods laid down by Emmet, all the pathological conditions were relieved.

DR. EDWIN RICKETTS concurred in the statement that plastic surgery had been neglected for the past few years. A laceration of the cervix was an open door through which there was a possibility of infection taking place. A laceration of the cervix might serve as an exciting cause for the development of cancer. These lacerations should be repaired and attended to after the manner suggested by Emmet and others. As to amputation of the cervix for cancer, he was very glad to see that the essayist had condemned it and advocated total extirpation.

FIRST DAY—*Evening Session.*

DR. M. ROSENWASSER, of Cleveland, O., read a paper entitled
THE MECHANICAL OR COMBINED PLASTIC AND MECHANICAL TREATMENT OF RETRODEVIATIONS OF THE WOMB.¹

DR. EDWARD J. ILL said it was hard on the patient when the surgeon could do an operation to permanently remedy a retroflexed or retroverted uterus and did not do it. The temptation was great, while he was repairing the perineum, the relaxed outlet, or the cervix, to make a permanent matter of retroflexion; and he usually did this, reserving those cases for pessary treatment that were otherwise quite perfect.

DR. A. GOLDSPOHN, Chicago, said the idea of treating prolapsus or retroversion of the uterus and prolapsus by plastics upon the pelvic floor, and then following that with pessary, was one that he did not favor. He was inclined to do all that was necessary for a woman, if she had to be anesthetized; and if he did a plastic operation on the pelvic floor, and the woman had a prolapsus, he usually did something to supplement the plastic operations upon the pelvic floor, that is, some attachment of the uterus, directly or indirectly, to hold it in place. In this country

¹See original article, p. 639.

we were more fortunately situated than Europeans, because the cases of marked descensus or prolapse were usually found in elderly women, in whom the child-bearing function was either out of the question or nearly so, and such women he thought we had the privilege to sterilize. Certainly they were willing to be so treated to be cured of their infirmity. If, however, he met occasionally with a young female, in whom the reproductive function was still a factor to deal with, the question became somewhat difficult, and we had no absolutely certain surgical means of curing the infirmity without interfering with the needs of gestation. The Alexander operation was not a good one for cases of prolapsus because of the great elongation of the sacro-uterine ligaments, which were required to have their proper or normal length quite as much as it was necessary to shorten the round ligaments. Some foreigners during the last few years had treated cases of prolapsus by the Alexander operation and by plasties upon the pelvic floor, and these had furnished the only instances of recurrence of the retroversion after an intervening pregnancy. So far as he knew, there were no other instances of recurrence of retroversion following the Alexander operation on record except those where the Alexander operation was done for cases of prolapse.

DR. HERMAN E. HAYD said there was one thought that occurred to him during the reading of the paper, and it was this: He never did a ventrofixation or a ventrosuspension in a child-bearing woman. He only did a ventrosuspension, or, better still, a ventrofixation, thoroughly scarifying the anterior surface of the uterus, sewing it firmly to the abdominal wall in a case where he had removed the tubes and ovaries or in a case of extreme procidentia. He believed that the operation of ventrofixation, together with plastic work, gave the best results in cases of extreme procidentia. He did not want the Fellows to think that he did not believe the pessary, in uncomplicated cases of retroversion or retroflexion, was not a valuable instrument.

DR. JOSEPH PRICE was very fond of using pessaries in suitable cases. He had given the pessary more thought and attention than any mechanical appliance he was familiar with in gynecology, and years ago he read the literature very thoroughly and studied the work of Smith, Thomas, Hodge, Hewitt, and others with great care, and he had found nothing in their contributions that he could very well contradict. In a certain class of patients, these eminent practitioners had used pessaries successfully. For instance, he had used pessaries in the cases of young women with posterior displacements who questioned the propriety of marriage with a knowledge of the fact that they had posterior displacements. He could recall half a dozen cases in which he had used pessaries in the last year or so, and among them was a young girl who was now travelling in Europe, and another patient who came to him recently to be delivered. He had put these patients to bed with posterior displacements that were distress-

ing, had anteverted the uterus, and placed a Hodge or Thomas pessary that gave them no discomfort. In short, they were unconscious of the presence of the pessary, except that they knew it had been inserted. They gave it no thought and behaved just like other women. If they conceived, at the fourth or fifth month the instrument could be removed. All of these patients had conceived and their uteri remained in position without discomfort or recurrence of the displacement, and the cures were satisfactory. What had occurred since delivery he did not know. In all probability the same displacements would follow the Alexander operation that followed their correction by pessaries. He thought that what was done by the Alexander operation had been largely undone by the gravid uterus at term.

DR. ROSENWASSER, in closing, said that Dr. Goldspohn had misunderstood him in thinking that he advocated the treatment of retroversion with prolapse by means of a plastic operation. He made special exception to those cases of retroversion that required some suspension operation or the removal of the uterus. He was not discussing the operative treatment, but simply referred to it in a general way, not limiting himself to any special form of suspension. In those cases where there was retroversion with prolapsus, they could not be treated with pessary and plastic operation alone. Those were the exceptions. He did not think gynecologists were quite ready to advocate the Alexander or any other suspension operation freely in simple cases, as the use of pessaries would relieve the symptoms in many instances.

SECOND DAY.—*Morning Session.*

DR. LEWIS S. MCMURTRY, of Louisville, read a paper entitled
SOME OBSERVATIONS ON THE SURGERY OF THE SPLEEN.¹

DR. JAMES F. BALDWIN said he had been asked to operate on cases of enlarged spleen, but on investigation had found that it was not the spleen but some other organ at fault, usually the kidney. There was one point that occurred to him which had not been alluded to by the essayist, and that was the differential diagnosis of tumors of the spleen from other abdominal tumors. The line of tympany of the descending colon would always tell positively whether we had a spleen or a tumor in the pelvic region to deal with. The colonic tympany would be on the right side of a splenic tumor, while it would be on the outside of a pelvic tumor. It would be on the outside of a tumor of the kidney. He recalled the case of a woman that came under his observation two or three years ago with sarcoma of the kidney—at least that was the diagnosis. He had removed a sarcoma of the ovary seven years previously, and it was the character of that

¹See original article, p. 599.

tumor which led him to assume that the kidney was sarcomatous in her case, after excluding other forms of disease as well as he could. Patient went to an institution at Battle Creek, Mich., and the tumor was diagnosticated as an enlarged spleen. The patient was sent home with the knowledge that her case was not one for operation—which was true, because the tumor was large. By this time the tumor became firmly adherent to the spine and surrounding tissues, so that it was clearly inoperable. In that case colonic tympany could be easily demonstrated without injecting air into the bowel, and it seemed to him an error in diagnosis was hardly excusable; but he had seen mistakes made in diagnosis by other surgeons, so that he presumed this point was sometimes overlooked.

A prominent merchant of Columbus, O., had a sarcoma of the kidney, this being the diagnosis that was made, based upon the fact that the patient had what the speaker considered unquestionably sarcoma of the testicle at the same time. The latter he examined thoroughly. The patient went to New York and consulted a surgeon of world-wide reputation, who, overlooking the point of colonic tympany, made a diagnosis of enlarged spleen, sent him home with instructions to use Fowler's solution, with a good prognosis. Patient died. The autopsy showed a sarcoma of the kidney, as in the case of the woman who went to Battle Creek, also of the testicle. Here was a point in diagnosis which surgeons should look for, and in so doing they would be able to exclude tumors of the kidney and of the pelvic region in cases of questionable diagnosis. Thus far he had not inflated the bowel, but that had been done by a Chicago physician.

Dr. L. H. DUNNING did not believe there was any neoplasm or any abnormal enlargement of any organ that might present so many difficulties in diagnosis as that of enlarged spleen. About three years ago he encountered a case of movable spleen in which a diagnosis was made of fibroid tumor of the uterus. The organ was slightly movable; it lay against the uterus and had all the appearances of being a subserous uterine fibroid. On opening the abdomen he found the spleen displaced downward and adherent to the upper portion of the enlarged uterus.

He encountered a case last summer in which he made an exploratory incision. He was able to determine, before the exploratory incision was made, that there was an enlargement of the spleen. It filled one side of the abdomen very nearly to the brim of the pelvis. The marks indicating an enlarged spleen were very evident. On entering the abdominal cavity he found such extensive adhesions that he felt unjustified in attempting to remove the organ. The patient had fever, lived for about two months, and then died. He had the privilege of making a postmortem examination in this case and found about two-thirds of the spleen involved in a necrotic process. The specimen was examined by a pathologist and pronounced an infarct of the spleen.

DR. J. HENRY CARSTENS said that these cases were very rare and that very few cases were on record either of cystic or movable spleen. He was preparing a paper on this subject and had looked over the literature thoroughly and had found very few cases. About two years ago he was called upon to remove a spleen which was supposed to be malignant. When he cut down on the outer edge of the rectus on the left side and had opened the abdomen, he found that he had an enlarged kidney to deal with. Inflation of the rectum or any other aid would not have enabled him to make a differential diagnosis. A year ago he had a case similar to the one reported by the essayist, which he narrated at length.

DR. A. GOLDSPOHN had nothing to contribute in regard to tumors of the spleen but the suggestion of a prominent surgeon whose name he could not recall, namely, to make an incision in the lumbar fascia, dissect it up, make a pocket, and introduce the spleen there, the organ being held by the pocket created in the fascia in front of the lumbar sheath of muscles.

DR. WALTER B. DORSETT, of St. Louis, Mo., said that in his section of the country malaria was quite common and there were many cases of enlarged spleen. He met with a case about a year and a half ago similar to the one described by the essayist, in which it was a question as to diagnosis. He made a diagnosis of cystic disease of the ovary; made an incision in the usual manner, and to his amazement found a very large spleen that occupied the cavity of the pelvis pretty well and was more or less incarcerated or fastened behind the uterus. Even after he had opened the abdomen and had palpated the organ he was still led to the belief that there was a cystic condition with contained fluid. But, after turning it over and examining it, he came to the conclusion that it was resilient and not fluctuating, and the question arose what was best to do. After passing his hand around the organ, he found it was attached to the anterior wall of the uterus and to the fundus of the bladder by a strong adhesion, one that was as large as a No. 12 or No. 13 silk ligature. But he was impressed with the firmness and strength of the adhesion. He divided it, and the spleen seemed to rise in the abdominal cavity. He thought of putting the spleen back and fixing it, but where the spleen was enlarged and congestion existed, as in cases of malaria, he did not believe this operation would have been feasible, and the question arose whether he had not better take the spleen out; but he felt he did the right thing, inasmuch as the patient was only confined to the house about six months, and finally recovered under the administration of Fowler's solution of arsenic together with quinine alternately. Cases were limited in which fixation of the spleen could be done, and he did not believe it was applicable in those cases where the spleen was enlarged on account of malarial infection.

DR. C. C. FREDERICK was called to see an elderly woman with what appeared to be an enlarged spleen. The percussion note

from the very top of the mass down to its bottom was absolutely flat; there was no evidence of any colonic resonance whatsoever. He distended the descending colon with gas and made out distinctly the line of colonic resonance below the tumor or below the line of the navel. The tumor was a large one, and proved to be a carcinoma of the spleen, as was subsequently revealed by a postmortem examination.

DR. McMURTRY, in closing, said that the object of his paper had been accomplished, in that it directed attention to the surgery of the spleen. The pathology of the spleen has been so obscure that this was almost an unknown field in the development of abdominal surgery, and the surgery of the spleen certainly deserved a great deal more attention than it had received, and he felt it would more and more intrude itself upon the attention of the Association. Just to illustrate this point, if any one would take Dennis' "System of Surgery," which was written less than a decade ago, and turn to the article on the surgery of the spleen, by Maurice H. Richardson, of Boston, he would find therein that the mortality of splenectomy at that time, from the best cases that could be recorded, was about forty per cent, which was enough to shut off that field as being open to surgery. Since that time great progress has been made, and it was his endeavor in his paper to separate the various diseases of the spleen, so that we might improve the methods of diagnosis and operate on those cases of disease of the spleen that were properly within the range of surgery, excluding from the statistics those desperate operations that had been made and were being made in almost a hopeless class of cases.

In regard to the diagnosis of cystic disease of the spleen, he stated that the differential diagnosis was to be made between an ovarian cyst with an elongated pedicle and a floating cystic kidney; and it mattered not whether it be a cystic spleen or a cystic degeneration of a fibroid tumor of the uterus, or whether it be a cyst of the ovary, operation was feasible. Cysts of the spleen should be classified along with other cystic diseases and the spleen removed, and it would be discovered, as he thought had been shown by his own case and by others, that operation was not only feasible but desirable, and in skilled hands could be accomplished with a great degree of safety.

Physiologists had informed us that the function of the spleen was shared by the bone marrow, and that its function, while not thoroughly understood, related to the making of the red blood corpuscles. The cases he had referred to in his paper showed that this function of the spleen could be dispensed with. In his own case the process of splenic degeneration had been going on for a long time; there was a very small part of the spleen remaining that was functioning, although the woman was ruddy, rosy, well nourished, and vigorous. After the removal of the spleen the health of patients was maintained upon a perfectly substantial basis. He saw the patient upon whom he

operated, a few days ago, it being six months since the operation was performed, and she was just as strong and vigorous as she ever was in her life, doing her own work, and, so far as the manufacturing of blood was concerned, it seemed to him the function was not at all interfered with.

In regard to the surgery of this organ, more attention should be directed to it and some rule should be formulated, and that was the purpose of his paper. In the study of cystic tumors surgeons should look upon the spleen as a possible factor in diagnosis of an obscure cystic tumor found in the abdomen, especially if that tumor could be moved over a very extensive area of the abdomen above and below the umbilicus. When it was found, surgeons did not need to hesitate to treat it, just as they did other tumors that were cystic.

DR. E. GUSTAV ZINKE, of Cincinnati, O., read a paper entitled
IS CESAREAN SECTION JUSTIFIABLE IN PLACENTA PREVIA?

After discussing elaborately the mortality and other factors of the conditions involved, he finishes by saying:

"I firmly believe that the Cesarean and the Porro operations are perfectly legitimate and elective procedures in all cases of placenta previa, central and complete; and especially so when the patient is a primipara, when the os is closed and the cervix unabridged, when hemorrhage is profuse and cannot be controlled by tampons and separation of the placenta around the internal os is difficult or impossible.

"That there are cases of 'partial' previas that may be successfully treated in the old way I do not doubt. Perhaps a small majority of all the placenta-previa cases can be treated successfully, as to the mothers at least, in the manner of Fry and De Lee. But what of the large minority of mothers that succumb and the great majority of children that are sacrificed at once?

"The question presented is very serious and should be earnestly and profoundly considered by every one; and when confronted with a case of central or complete placenta previa, or any other variety where dilatation of the cervix is impossible or difficult, the patient and her immediate friends should be made acquainted with all the facts concerning both methods of treatment. If properly presented, it is doubtful whether the majority of women would select forcible dilatation, version, extraction, etc."

DR. WILLIAM J. GILLETTE, of Toledo, O., believed there was a distinct field for the classical Cesarean section and the Porro. In desperate cases he held that the Porro would prove to be the better operation, because if infection occurred afterward it would be the fault of the operator and not the operation itself. In the classical Cesarean section there were practically no dangers that followed that did not pertain to the Porro-Cesarean section. As to the danger of secondary hemorrhage, emergency cases could not stand hemorrhage. A few ounces of

blood might determine the difference between life and death. There was always danger of sepsis. The uterus did not contract properly in the desperate cases where much blood was lost. The uterus would not contract as it should in normal cases, and of course that meant retention of placenta and consequent danger of infection. Such patients were ill able to withstand infection, and this constituted the great danger. This was all done away with by Cesarean section.

DR. J. H. CARSTENS said a great many of the cases reported seemed to him to have been treated very imperfectly, and he was beginning to think that the obstetric art had been lost. The idea of having a case of placenta previa for three or four or six weeks without doing something, and allowing the woman to go on until the last minute until her life was greatly endangered, was certainly poor treatment. He thought obstetric teaching in America was a little weak. The profession should be stirred up a little on this line. A practitioner, in an ordinary case of placenta previa, ought to be able to either tampon, put in a rubber bag, or secure a little dilatation of the cervix, and then turn the child, permitting Nature to do the rest. Hemorrhage could be stopped in many cases by pulling down the feet. Once in a while a patient might be lost, but not very often.

Some would say that these patients could be taken to hospitals and operated on by skilful abdominal surgeons. This might be done in some instances, but many of these cases occurred in the backwoods, so that before a skilled surgeon had arrived, or the patient was brought to a hospital, she would bleed to death. He had seen such patients die in fifteen minutes. What was the use of preaching and advocating Cesarean section in such cases when it was utterly impossible, in the vast majority of cases, to secure the services of a physician or surgeon who was competent to do the work, or to bring the patient to a hospital?

DR. EDWARD J. ILL advanced an argument that was not touched upon by the essayist, namely, the results after forcible dilatation. Forcible dilatation usually meant tearing of the tissues into the broad ligament, and usually the woman was never well again; while a woman that underwent Cesarean section was well in four weeks. His brother had had occasion to perform two Cesarean sections on the same woman within a year, and she was just as well the second week after the second operation as she was after the first. He and his brother had had occasion to do eleven Cesarean sections within four years, and an easier and simpler operation he could not conceive. He had a horror of placenta previa. During the first three months of his practice his sixth, seventh, and eighth cases of labor, occurring in one week, were all cases of placenta previa, and all three died. He was deeply impressed by these three cases. Now, Cesarean section opened up a new field. He did not see why a Porro should be done in a simple case. The hemorrhage was almost nothing.

provided the physician did not put any pressure on the cervix. In the early cases the cervix was compressed to check hemorrhage; in later cases this was not done and there was no hemorrhage. It made all the difference. The septic cases could not be saved.

DR. JOSEPH PRICE said that the Fellows could not help but appreciate the contribution of Dr. Zinke at this time. Many practitioners began to feel that obstetrics as a specialty, or as a scientific branch of medicine, was a lost art. He thought that with the death of Parvin we had lost the best and purest obstetrician then teaching in America. He related a case in which the attending physician was about to do a Cesarean section, but before he began to do so the speaker asked permission to apply the Tarnier forceps, which he did, and the delivery was an easy and quick one. He alluded to this case to emphasize the importance of paying more attention to practical obstetrics in medical schools. What Dr. Carstens had said was very good. While considering the importance of saving the mother, it was very well known that many of the attempted deliveries in cases of placenta previa were criminal assaults. That was all they could be called. Men like the essayist had been good general practitioners; they had given up a large obstetrical practice, and had slowly and by painstaking apprenticeships, hard study and practical work, become gynecological specialists. Very few had become specialists in obstetrics, he regretted to say. There had never been a premium on practical obstetrics. Cases of placenta previa in the hands of the old-fashioned practical obstetrician were quite as safe, perhaps, as in the hands of the gynecologist who substituted for the ancient and barbarous methods of delivery the Porro operation, and if specific rules governing us as to the election of methods were adopted the mortality from the Porro operation, as well as from Cesarean section, should be almost *nil*.

DR. CHARLES GREENE CUMSTON narrated the following case: A patient 29 years of age; her last child was born four years previously and had died at about 2 years of age. The patient again became pregnant, and went along very nicely until about the last half of the last month, when suddenly one afternoon hemorrhage occurred. The family physician called an obstetrician, who found the os rigid, not dilated, and advised the usual treatment of rest and quiet and to watch the case very closely. The hemorrhage ceased. It was thought that there was probably a detached placenta. Hemorrhage recurred two or three days later, under the same conditions, and patient was kept in bed. Hemorrhage again ceased, but patient had lost a considerable quantity of blood. The child was alive; the heart sounds were good, etc. After consultation it was decided to do a classical Cesarean section. This was done and took twenty minutes. Both mother and child were saved and were living today. He did not advocate this operation in cases of placenta

previa. While he did not know, he thought podalic version would take much more time than it would to perform a simple Cesarean section.

DR. JAMES F. BALDWIN said it seemed to him that when the Fellows read Dr. Zinke's paper and noted the care with which he hedged around the operation, they would all agree with his conclusions. He fully agreed with Dr. Price as to the education of obstetricians. He had frequently stated before the Ohio State Medical Society that obstetrics was neglected. He had practised obstetrics for a good many years and knew something about it. He agreed also with Dr. Price and the essayist as to the ease with which these operations could be done. He was a general practitioner when he made his first Porro. He had then made perhaps a dozen abdominal sections; yet he operated at two o'clock in the morning, in a cellar, without a trained assistant or nurses, with two borrowed lamps to furnish light, and the operation was done without a particle of trouble and the patient had the shortest and easiest convalescence. He did not believe, nor did he think the essayist believed in making a Cesarean section or Porro operation in all cases of placenta previa. It was simply the bad cases, that were described in the paper, that should be operated on.

DR. FREDERICK BLUME, of Pittsburg, Pa., said with regard to the operation of Cesarean section, if it were generally advocated he thought the mortality would be fifty or sixty per cent—at any rate, far greater than it would be in treating placenta previa by the old methods.

DR. HUNTER H. POWELL, by invitation, stated that he had listened to the paper of Dr. Zinke with great interest, yet he thought it would not have been read before the Association by so eminent an obstetrician if professors of obstetrics had been doing their duty in teaching this subject during the past twenty years. The paper was practically an arraignment of professors of obstetrics. The charms and fascinations of surgery and gynecology had weaned them, so that old-time obstetricians, like Barnes of London and Fordyce Barker of this country, were few and far between. Obstetrics did not receive the attention that it deserved. With the advance in surgery, with the excellent results following Cesarean section, there were undoubtedly cases where Cesarean section could be resorted to in primiparæ, with an os that would not dilate, with profuse hemorrhage that could not be arrested, etc. But he thought it would have a bad effect if the information was sent broadcast, with the approval of the Association, that the time had come when Cesarean section should be permanently considered with reference to placenta previa.

DR. A. GOLDSPOHN called attention to the fact that most of the statistics that were made use of were gathered from physicians who were either active members of medical societies or who were more or less actively connected with college hospitals, in-

firmarys, or some similar institutions. They constituted perhaps one-half the total number of medical men, while the other half were men who did a great deal of service for the populace, but they had very little incentive to publish what work they did, and certainly a less incentive to publish their non-successes, if they ventured a little bit beyond their capacities. This fact should be remembered in estimating the statistics that are given in the valuable contribution of Dr. Zinke. It was very evident, in the hands of one who was able to do an abdominal section skilfully, that a Cesarean section would be a very eligible method of treatment out of two different forms of treatment, and one so qualified, whether he operated in a cellar or in a hospital, would know how to provide the necessary antiseptic and aseptic conditions. It was entirely different when one was not accustomed to such operating.

The general practitioner did not operate on fibroid tumors, ovarian cysts, etc., but referred his cases, as a rule, to men whom he knew to be qualified to operate on them. But in cases of placenta previa where Cesarean section was indicated many such operations would necessarily have to be done by general practitioners.

DR. EDWIN RICKETTS knew of twelve Cesarean and Porro sections that had been done in the Miami Valley successfully by general practitioners. While the members of special societies were making progress, general practitioners were not slow in advancement.

DR. ZINKE, in closing the discussion, said he had investigated and studied the subject carefully and had weighed every word in his paper. He had not spoken for the general practitioner, the gynecologist, nor the obstetrician alone, but he had spoken to the medical profession here as well as elsewhere. Notwithstanding the great skill and manipulations of the obstetricians of the past, notwithstanding the remarks that had been made by Dr. Price and others, obstetrics was taught in the United States to-day as well as it was anywhere else, but we had not the same amount of material at our disposal as they had abroad. He did not wish to be understood as saying that the obstetrician had no right to practise gynecology, because obstetrics and gynecology should go together. In his opinion they were one and inseparable, and should remain so. It was not the fault of the obstetrician of the present day that obstetrics was not understood. If men refused to acquire a knowledge of it it was not the fault of the teachers. He contended that a man who was able to treat a case of placenta previa by the tampon, by dilatation, by separation of the placenta, version and extraction of the child, was able to perform Cesarean section.

The President's address was delivered by Dr. W. E. B. DAVIS, of Birmingham, Ala., who selected for his subject

THE SURGICAL TREATMENT OF BILIARY CALCULI, WITH SPECIAL
REFERENCE TO HEPATOTOMY.

The address was confined to the principal operative procedures for cholelithiasis. He favored cholecystostomy as a rule for gall-bladder and cystic-duct calculi. Much has been claimed within the past five years for cholecystendysis, with or without drainage of the abdominal cavity. While this operation has something to commend it, being simple and obviating the disagreeable discharge of bile from three to four weeks from a fistula, yet its field is limited when the etiology and pathology of cholelithiasis are given due consideration. Stagnation of bile, with altered epithelium and infection from the typhoid or colon bacillus, as found in many cases where there is no evidence of infection from the character of the fluid in the bladder, would contraindicate its closure. If stones should be found, where an examination of the gall bladder is conducted through the abdominal incision made for the relief of pelvic disease or other abdominal trouble, cholecystendysis might be performed with advantage. The primary incision in the abdomen should be closed and the opening made as in the classical cystotomy. Cases in which calculi would be found by this method are not associated with inflammatory changes and are the ones that go through life without symptoms referable to the gall bladder, being found at the autopsy or in the dissecting room.

Cholecystectomy was reserved for stricture of the cystic duct, inflammatory changes which greatly endanger the walls of the bladder, and malignant disease.

Choledochotomy without suture is called for in the large majority of common duct stones. Suture of the duct may be practised if the patient's condition has not been rendered serious by much suffering and protracted jaundice and if the duct is enlarged and not markedly inflamed. Gauze drainage should be resorted to in all cases, it matters not how carefully the stitching of the duct has been carried out. The time required for suturing the duct adds very greatly to the gravity of the operation in cholemia of long duration. It would also be contrary to surgical practice elsewhere to suture when offensive infected bile escapes from the duct.

Morrison's pouch, which will hold nearly a pint of fluid, makes drainage in this location entirely satisfactory. The lumbar stab is preferred by some surgeons, but the entire safety of transperitoneal drainage has been abundantly demonstrated.

Hepatotomy is indicated in cases of obstruction with enlarged liver where the gall bladder or ducts cannot be isolated, or the patient's condition from exhaustion and cholemia will not permit of a protracted search for the bladder or ducts. After the patient's condition is better a radical operation may be done. It will be only exceptionally called for, and the cases will be fewer as the surgeon's experience increases. In addition to the above indications he thought the operation should be resorted to in hepatitis before it has reached the stage of pus formation, if the liver does not rapidly become smaller after drainage of the

biliary reservoir of the ducts. His attention was first attracted to the value of the procedure in a case in which the amount of pus removed was not more than half an ounce, but in which the division of the biliary canals resulted in the escape of large quantities of bile for many weeks.

SECOND DAY—*Afternoon Session.*

DR. L. H. DUNNING, of Indianapolis, contributed a paper entitled

GALLSTONES IN THE COMMON DUCT, WITH REMARKS UPON THEIR FREQUENCY, DIAGNOSIS, AND TREATMENT.¹

DR. EDWIN RICKETTS, in a series of fifty gallstone cases, had had but two in the common duct. His mortality had been fifty per cent. The operation for stone in the common duct was certainly one of the most perplexing procedures that could befall the surgeon. He called attention to probing the hepatic duct, saying that he reported a case before the Southern Surgical and Gynecological Association, at its meeting in Louisville, in which the hepatic duct was probed from above. He had done this several times since.

DR. X. O. WERDER, of Pittsburg, mentioned a procedure which he had followed in one case, which he believed was original, and which perhaps in some exceptional cases might be of service in the surgery of the common duct. The patient was a man, 50 years old, who had been suffering for several years with attacks of biliary colic and jaundice. In operating he found the intestines, stomach, and omentum adherent to the lower border or surface of the liver, so that it was extremely difficult to break up the adhesions. After he succeeded in placing his hand under the liver it was impossible to feel the gall bladder. He located the stone. After exposing the parts a little more, the anatomical landmarks having been all wiped out so that it was impossible for him to see what he was doing, he used the stone as a guide and cut down over it. He had not only opened the common duct, but duodenum, which he sutured. He put in a few sutures in the common duct, intending to tie them after delivery of the stone. The stone was one of the ball-valve variety, and in delivering it he lacerated the common duct considerably. The common duct was dilated, and sacculated to a size much larger than his thumb. The delivery of the stone was followed by a gush of bile which flooded the field of operation, and compression served to arrest the flow temporarily. As soon as the compress was removed a stream of bile poured out. The patient was getting weak, the operation had been prolonged, so he decided to insert a small rubber tube into the common duct

¹See original article, p. 606.

and pass it out through the bowel into the duodenum. This served to carry the bile into the bowel, and the field of operation was then clean. He then tried to tie the sutures he had inserted, but found, in making traction on them, they tore out. He put in new sutures, and they all tore out, it being impossible to stitch the common duct. He had intended to leave the tube temporarily until he succeeded in inserting sutures, but under the circumstances he decided to leave it, pushing the tube more into the bowel, so that at least one-half of the tube was in the bowel. He packed the wound with gauze and closed the abdominal wound. The operation was done over a year ago. The patient recovered. A few weeks ago the patient told him that he was feeling better than ever before. He did not wish to recommend that procedure in every case, but it might serve a useful purpose in the operation under discussion.

The essayist had referred to stenosis of the pylorus which was caused occasionally by adhesions. The speaker had operated on such a case within the last year, in which a diagnosis of dilatation of the stomach was made, probably with stenosis of the pylorus. The woman was emaciated to a skeleton and had been unable to retain anything. On opening the abdomen he found the pylorus adherent to the gall bladder. There was quite an acute pain in the region of the pylorus, producing almost complete obstruction of the pyloric outlet. He did a cholecystostomy, broke up the adhesions, and the patient made an excellent recovery.

DR. MILES F. PORTER called attention to one or two points, one of which was suppression of urine in gallstone cases. In three cases, operated on in the presence of cholemia, he had seen suppression of urine occur afterward, with death of the patient. He had not seen this cause of death referred to in these cases, but he believed it occurred quite frequently. He recalled speaking to Dr. Andrews, of Chicago, about suppression of urine in these cases, and Dr. Andrews informed him that it had occurred in his practice in more than one or two cases following operation on patients suffering from cholemia. If suppression of urine was of frequent occurrence, intravenous transfusion of normal salt solution might be the means of tiding these patients over the dangerous period.

DR. M. STAMM, of Fremont, O., asked whether suppression of urine was not due to acute dilatation of the stomach. He thought Kehr or some German author dwelt on that important point after operations on the gall bladder, and reported a number of cases of acute dilatation of the stomach in which there were symptoms of suppression of urine.

He had a case fourteen years ago of hepatectomy, a year and a half before hepatectomy was done by Kocher. He reported this case in the *Journal of the American Medical Association*. There was a congenital absence of the gall bladder in a woman, 62 years of age, who had symptoms of gallstones for

six months, with pain over the region of the gall bladder. When he cut down he could not find any gall bladder, but found three gallstones. Patient died thirty-six hours after the operation. Postmortem examination revealed about two quarts of biliary fluid in the stomach. About ten years ago, at a medical meeting, he was asked whether suppression of urine might not have been due to acute dilatation of the stomach or to the large quantity of fluid in the stomach. When he read the experience of Kehr he was substantiated in his opinion that a great many cases of suppression of urine were due to acute dilatation of the stomach. He had had two cases since. He had washed out the stomach, had found large quantities of biliary fluid in it, and it relieved the urinary symptoms and vomiting immediately, totally changing the clinical picture.

DR. WILLIS G. MACDONALD discussed two points which had been brought up in connection with the subject, one of which related to the suppression of urine in cases of chronic obstructive jaundice, and particularly with relation to the time when operation should be undertaken. This was a difficult thing to fix; and yet he believed three months was entirely too long a time to wait when the symptoms were distinctive of this condition; that during these three months, through the poisonous effects of the circulating bile in the blood, we had too frequently established a condition of albuminuria associated with hyaline and granular casts. All that was needed was anesthesia on top of this condition to bring about acute congestion and suppression of urine. He believed this was one of the frequent causes of death in neglected cases where operation should have been done a long time before. The effects of the circulation in the blood of these toxic agents in chronic obstructive jaundice not alone involved the kidneys, but these patients suffered seriously from circulatory disturbances. They bore the shock of operations very badly. Many of these patients had a bad and high pulse rate, as associated with the operation, which ought not to cause that condition under other circumstances. Sudden death associated with these cases was not an unknown factor, and one which was not very readily explainable by modern pathological examinations. Another condition was the extreme frequency with which secondary hemorrhages were associated with operative intervention in old cases of chronic obstructive jaundice. He had seen this happen too frequently—a simple oozing from a cholecystotomy from the interior of the gall bladder, or an oozing from stitch holes in the wounds that had been made, this continuing, and the patient going on to death with exhaustion. In the last year he had had occasion to treat some of the more severe types of cases, and in the matter of secondary hemorrhage he thought we had an agent of some considerable value in adrenalin. The first case he injected the bleeding gall bladder with adrenalin, it simply being put up in sterilized solution of glycerin and water. In later cases he had packed the

gall bladder with a solution of 1:1000 of the adrenalin chloride, and it seemed to be very effectual.

DR. DUNNING, in closing, said that many cases of chronic obstruction of the ducts would not show any very acute symptoms and there would be no deep cholemia present. He had a case under observation at present who had had chronic obstruction of the common duct for more than a year, with slight jaundice. The jaundice was intermittent in character. Patient is about, attending to his duties part of the time. There was no sign of cholemia. It was a fact that, under the Carlsbad or saline treatment, frequently these patients recovered after three months, so that where there were no acute symptoms he thought three months was not a long time to wait. On the other hand, where the obstruction was associated with cholangitis, cholecystitis, or pericholecystitis, there we had pyemic conditions going on; and in some cases where we had almost complete obstruction cholemic symptoms appeared which would bring about disastrous results to the kidney, blood, and tissues that had been described by Dr. Macdonald. In such cases operation should be undertaken early.

He was much pleased with the remarks of Dr. Werder, and that he had found a new method of overcoming some difficult conditions that were present. He believed that there was a greater field opening for surgeons in this direction for the relief of chronic choledochus obstruction.

(To be continued.)

REVIEWS.

A HANDBOOK OF PATHOLOGICAL ANATOMY AND HISTOLOGY. With an Introductory Section on Postmortem Examinations and the Methods of Preserving and Examining Diseased Tissues. By FRANCIS DELAFIELD, M.D., LL.D., Professor of the Practice of Medicine, College of Physicians and Surgeons, Columbia University, New York, and T. MITCHELL PRUDDEN, M.D., LL.D., Professor of Pathology and Director of the Department of Pathology, College of Physicians and Surgeons, Columbia University, New York. Sixth edition. Pp. 819. With 13 full-page plates and 453 illustrations in the text in black and colors. New York: William Wood & Company, 1901.

Although this volume appears as the sixth edition of Delafield and Prudden's "Handbook of Pathological Anatomy and Histology," the work of revision has been carried on by Dr. Prudden alone, Dr. Delafield having retired from active participation in its preparation. It has been largely rewritten and shows marked advances over earlier editions. Footnotes containing references to bibliography and fuller accounts in other works

occur frequently and are of great value. Many chapters have been improved by the insertion of introductory remarks presenting in a general way an outline of their subjects and of the present views of fundamental facts concerning them. The book, which needs no introduction as the work of an acknowledged authority upon pathological questions, is written in an easy though forcible style. It combines scientific accuracy with a scholarly thoroughness and simplicity. The present edition shows particularly an effort to avoid complicated classifications. Many new drawings and photographs of unusual artistic merit add to the value of a work whose general appearance is in keeping with its literary and scientific standard.

Part I. is devoted to the technique of autopsies and of the preparation of specimens. In this edition the directions for making postmortem examinations are made more complete by remarks in regard to bacteriological study of specimens, and the lesions in forms of death from violence are logically inserted at this point. A number of changes are naturally to be found in the chapter on preserving and preparing specimens, on account of the improvements in technique since 1896. Among these are the use of Orth's and Zenker's fluids, and of rigid blocks of vulcanized fibre instead of cylinders of cork or wood for holding embedded tissue. Another valuable addition is Stepanow's rapid method of embedding in celloidin to which oil of cloves has been added, by which the process is completed in from five to eight hours.

Part II. includes the remarks on general pathology. In his introduction to this section the writer shows the important relation of pathology to normal anatomy and physiology, zoölogy, botany, and chemistry. He emphasizes the fact that disease is not an entity which may enter the body from without, not a thing but a process, an abnormal performance of some of the functions of the body. It is said that the pathology of to-day is essentially a cellular pathology, but that it is necessary to correlate closely the knowledge of living cells with observations upon those which are dead, and frequently to interpret obscure manifestations of cell life by comparison with simpler organisms of the animal or vegetable world. In the opening chapters, devoted to progressive and retrogressive changes in tissues, a number of acceptable additions have been made, notably in connection with the subject of regeneration. Radical alterations appear in the chapter on inflammation—a process which the writer characterizes, in the words of Adams, as “the local attempt at the repair of injury,” and describes as “an emergency measure incited by injury, in which the body adapts to unusual ends as best it can mechanisms and powers normally maintained for other purposes.” Under this view the so-called productive inflammation, which was so recently considered only as a progressive lesion of dangerous character in which the production of new fibrous tissue was the essential and fundamental factor, now often appears in the same light as the growth of cicatricial tissue

in a healing wound, or as replacing degenerated or damaged cells. It presents itself as a conservative rather than a destructive process. This chapter is an admirable summary of the significance of inflammation. The subjects of animal and plant parasites are presented in practically the same form as in the preceding edition, merely an outline of bacteriological technique being given. Under the heading of Infection and Immunity attention is called to the fact that no micro-organism is intrinsically pathogenic, but that this characteristic depends upon the susceptibility of the host and the variable nature and qualities of the organism. Our inability to understand the disturbances which we call disease is attributed to our lack of knowledge of the molecular transformations and combinations through which the life processes of the cell are normally carried on. Such expressions as these show the spirit in which the work has been written—a marked conservatism inspired by a much-felt sense of the necessity of investigation of the fundamental principles of the life processes of the healthy body. The remarks leading up to the description of the pyogenic bacteria are much more full than heretofore and introduce the subject in a more satisfactory way. The chapter on infectious diseases shows revision in many slight details, including the addition of recent views in regard to their pathology. Under typhoid fever, for example, mention is made of the proliferation of endothelial cells and their phagocytic nature as described by Mallory. The alterations in this chapter are in many cases intangible; in others they have added materially to the subject matter of the earlier editions. Bubonic plague is one of the diseases which naturally receive more attention than formerly. The section on malaria, by Dr. Wood, gives in fairly condensed form a good idea of the life history of the plasmodium malariae of different types, with the lesions of the disease and the methods of blood examination. The chapter on tumors has been to a great extent rewritten in accordance with recent theories. Their etiology is discussed more at length than previously and with the same conclusions, the parasitic theory being regarded as not proven, and the need of deeper insight into the life processes of the cell being emphasized as essential to an understanding of the subject. The discussion of the lesions induced by poisons is broadened by the introduction of a section upon endogenous poisons, the autointoxications. General diseases are treated somewhat more fully than before, and the condition known as lymphatic constitution receives attention for the first time.

Part III. covers the field of special pathology of the different systems and organs. The sections on the blood and diseases involving it have been slightly revised by Dr. Wood. Jenner's stain is favorably mentioned. Acute inflammation of the lymph nodes is divided into hyperplastic and exudative, these having formerly been described together. Chronic endothelial hyperplasia of the spleen, or primary splenomegaly, which has until recently been regarded as a tumor of the organ, receives men-

tion. Chronic arteritis has been made more easily comprehensible by generalization and simplification, omitting the former attempts to divide the subject into a number of classes of cases. The chapter on the respiratory system has been practically rewritten and the treatment of the subject greatly simplified. Brown induration is now described as chronic congestion rather than as pneumonia of heart disease, the lesion being a congestion rather than an inflammatory process. Changes are found in the presentation of lobar and broncho-pneumonia, but the chief alteration is in the description of pulmonary tuberculosis. The antiquated and inexpressive term phthisis is dropped and the subject is treated logically as variations of a single process under the headings: 1. Focal or miliary tuberculosis. 2. Tuberculous broncho-pneumonia. 3. Complex forms of nodular and diffuse tuberculous lesions. 4. The formation of cavities. 5. Secondary lesions in pulmonary tuberculosis. 6. Concurrent infection. The digestive system shows many alterations. Acute infectious colitis is divided into cases caused by the ameba coli and those with bacterial excitants, the latter class having only recently received adequate recognition. Hemorrhage into the pancreas and hemorrhagic pancreatitis are differentiated.

The subject of nephritis is treated in an eminently conservative manner and with a view to simplifying more intricate classification. Recognizing the difficulty of dividing the lesions in accordance with clinical, analytical, and microscopic findings, the writer shows that the processes concerned are degeneration and inflammation of exudative or productive character, and that these vary in extent, duration, intensity, relative predominance, and in the structural elements of the kidney which they chiefly affect. Upon morphological data and with these variations in view he divides acute inflammation into suppurative and acute diffuse nephritis. He describes these in a general way and then shows that the former may originate from traumatism with local infection, or from embolic or from ascending infection. It is shown that in acute diffuse nephritis one or another feature may predominate, giving the glomerular, parenchymatous, hemorrhagic, exudative, and interstitial types; but that these run into each other so that such distinctions are not sharply defined, but simply a convenience. Chronic diffuse nephritis is divided into parenchymatous and interstitial, with the occurrence of intermediate forms in which either is more marked. No radical changes are found under the heading "Reproductive Organs of the Female," but, as elsewhere, the illustrations have been greatly improved. The section on the nervous system has been thoroughly revised by Dr. Bailey, the chief addition being a discussion of degeneration and regeneration of neurons.

One lays aside the volume with the feeling that the controlling idea of its author is the necessity for investigation of the normal cell and of its life history, since pathology is but the study of the same cell living under abnormal conditions. And this knowledge of the human cell he would seek through a better under-

standing of the cells of humbler forms of life. This linking of pathology with the allied biological sciences, this viewing pathology, in the words of the writer, "as one aspect of the diverse manifestations of life and of energy rather than as belonging to a special and exclusively human domain," seems to be the keynote of the work.

H. D.

A TEXT BOOK OF BACTERIOLOGY. By GEORGE M. STERNBERG, M.D., LL.D., Surgeon-General United States Army; Ex-President of the American Medical Association and of the American Public Health Association, etc. Illustrated by heliotype and chromo-lithographic plates and 200 engravings. Second revised edition. Pp. 708. New York: William Wood & Company, 1901.

The original representative of the present volume was Sternberg's "Manual of Bacteriology," which was published in 1892. In 1896 the first edition of his "Text Book of Bacteriology" appeared. This was an abridgment of the earlier work, omitting the bibliography and many descriptions of non-pathogenic bacteria. The present edition includes new sections on "Protective Inoculations in Infectious Diseases" and "Bacteria of Plant Diseases." The writer's acknowledged position and the general appreciation of the value of his earlier works make commendation of this edition unnecessary. The work contains many careful reviews of the literature of the subjects under consideration.

Part I. opens with a very brief historical sketch of bacteriology, followed by a discussion of methods of classification. The writer adopts that of Baumgarten with some modifications, though he states that all forms of classification suggested are unsatisfactory from a scientific point of view. A short description of the morphology of bacteria precedes the chapter on staining methods. In the latter Sternberg advocates the preparation of smears upon glass slides rather than by the usual cover-glass method, as being less easily broken and more easily held than cover-glasses. Only a limited number of approved methods of staining are described. Directions are given for making and sterilizing culture media, and for making cultures in liquid and solid media by accepted processes. Methods of cultivating anaërobic bacteria are also given, and a chapter is devoted to incubating ovens, their structure and regulation. The technique of animal inoculations is briefly outlined.

Part II. is devoted to the general biological characters of bacteria and the action of antiseptics and disinfectants. Several chapters are occupied by the subjects of the structure, motion, reproduction, and conditions of growth of bacteria. Attenuation of virulence by culture methods, heat, antiseptics, etc., and recovery of virulence, are referred to in a few words. A chapter on "Products of Vital Activity" describes the formation of pigment by some colonies, liquefaction of gelatin, fermentation, and various chemical reactions which are more or less character-

istic of various bacteria. Ptomaines and toxalbumins are also considered. "Influence of Physical Agents" is the title of a chapter on the effect of cold, dry and moist heat, desiccation, light, etc., upon the life and growth of bacteria. The writer defines an antiseptic as an agent restraining the development of micro-organisms without destroying their vitality, and classes those which actually destroy vitality as germicides or disinfectants. He goes quite freely into the consideration of many drugs of each of these classes. The germicidal power of the blood and other organic liquids is mentioned. A chapter on disinfection gives the methods of several authorities. Those for the hands include only bichloride and carbolic acid, one or both, and potassium permanganate followed by oxalic acid.

Part III., on "Pathogenic Bacteria," forms the bulk of the work. A large portion is filled by the discussion of their modes of action, channels of infection, susceptibility and immunity, and protective inoculations. While much of the rest of the volume is filled with practical bacteriology and descriptions of technique, the chapters on "Susceptibility and Immunity" and "Protective Inoculations" contain much that is of theoretical as well as practical interest. In the portion of the volume devoted to the study of individual pathogenic bacteria are found accounts of those of animals as well as man, and one chapter is assigned exclusively to bacteria of diseases of plants.

Part IV. concludes the book with a discussion of bacteria in air, water, soil, surface of the body and exposed mucous membranes, stomach and intestine, cadavers and putrefying material, and those found in food.

It seems unfortunate that a work so well known and of such general excellence should be filled, like many others, with claims of priority of discovery, subjects interesting only to those who make them.

MANUAL OF THE DISEASES OF THE EYE FOR STUDENTS AND GENERAL PRACTITIONERS. By CHARLES H. MAY, M.D., Chief of Clinic and Instructor in Ophthalmology, College of Physicians and Surgeons, Medical Department Columbia University, New York. Second edition, revised. Pp. 406; 275 original illustrations, including 36 colored figures. New York: William Wood & Company, 1901.

The need for a new edition within less than a year shows the favor with which this manual has been received. It is concise, practical, and touches mainly on points of every-day interest. The principal changes in this volume have been in the chapters on acute catarrhal conjunctivitis and on ocular therapeutics. Several illustrations in the text and seven new plates have been added, showing in color the micro-organisms found in diseases of the conjunctiva, cornea, and lachrymal sac; sections of the eyeball; visual and pupillary paths; changes in the media as seen

with oblique illumination and the ophthalmoscope at a distance; and eight common ophthalmoscopic changes.

A GUIDE TO THE CLINICAL EXAMINATION OF THE BLOOD FOR DIAGNOSTIC PURPOSES. By RICHARD C. CABOT, M.D. Fourth revised edition. Pp. 494, 8vo. New York: William Wood & Company, 1901.

This work becomes with each succeeding edition more valuable to the practitioner who wishes to keep abreast of the rapidly increasing knowledge in blood pathology. The text of the present volume has been very extensively rewritten, especially in the sections on pernicious anemia, leukemia, typhoid, nephritis, pleurisy, bronchitis, malaria, and other diseases due to animal parasites. The section on the general pathology of the blood is of exceptional value, and is now based on over twelve thousand examinations conducted at the Massachusetts General Hospital. The plates and illustrations in the text are satisfactory, especially those of the malaria organisms. The size of the book is not much increased, as a judicious weeding has about balanced the addition of new matter.

ESSENTIALS OF OBSTETRICS. By CHARLES JEWETT, A.M., M.D., Sc.D., Professor of Obstetrics and Gynecology in the Long Island College Hospital, and Obstetrician and Gynecologist to the Hospital, etc., assisted by HAROLD F. JEWETT, M.D. Second edition. Illustrated by 80 woodcuts and 5 colored plates. Pp. 385. New York and Philadelphia: Lea Brothers & Company, 1901.

Written primarily as a guide to the author's students in mastering the elementary principles of obstetrics, this little work, as in its first edition, has been kept down to a statement of essential facts, the author believing that when these have been mastered the pupil can more easily and surely build up a complete and systematic knowledge of the subject. The present edition has been carefully revised and much new matter added.

TRANSACTIONS OF THE SOUTHERN SURGICAL AND GYNECOLOGICAL ASSOCIATION. Vol. XIII. Pp. 935. Published by the Association, 1901.

The thirty-seven papers contained in this volume are those read before the meeting of the Association held at Atlanta, Ga., November 13 to 15, 1900. They make an interesting and valuable collection, covering a wide field in general surgery, gynecology, and obstetrics.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Pelvic Indications for the Performance of Cesarean Section.—J. W. Williams¹ gives the following conclusions drawn from his experience in the obstetrical department of the Johns Hopkins Hospital: 1. Two hundred and seventy-eight cases of contracted pelves were noted in 2,123 consecutive cases of labor (13.1 per cent) occurring in every fourteenth white and every sixth black woman. 2. Spontaneous labor occurred in 71.58 per cent of these cases, but decreased rapidly in frequency as the contraction became more marked. When the conjugata vera measured between 10 and 9 centimetres, 77.28 per cent of the cases ended spontaneously; between 8.9 and 8 centimetres, 61.54 per cent; between 7.9 and 7, 33½; when 6.9 centimetres or less, none ended spontaneously. 3. In view of the present low mortality attending Cesarean section (3 to 4 per cent), the indications for its employment should be markedly broadened if the patient is uninfected and in suitable surroundings, the child in good condition and the obstetrician a competent operator. The absolute indication should be extended from 5.5 to 7 centimetres, and the relative indication from 7 to 8.5 in flat and 9 centimetres in generally contracted pelves. 4. In the interests of the child, in moderate degrees of pelvic contraction, forceps upon the movable head and version should be abandoned, and Cesarean section performed if the head shows no signs of moulding and descent after one hour of second-stage pains. 5. The operation should not be performed for the relative indication in infected mothers, as, under such circumstances, perforation is the operation of choice, if delivery cannot be effected by high forceps or version; while if the absolute indication be present, the Porro-Cesarean section should be performed.

Edward Reynolds¹: The Cesarean section performed late in labor, or in the presence of infection of the uterus or other complicating constitutional conditions, has been shown, by the experience of almost every operator who has tried it, to have so high a mortality as to be totally unjustifiable when performed in the interest of the child alone. When a Cesarean section is performed on a healthy woman, early in labor, and under otherwise favorable circumstances, for merely mechanic indications, it has, in skilled hands, no mortality other than the fractional percentage incidental to all considerable operations *per se*. The inconveniences and high morbidity rate of symphyseotomy render it distinctly inferior to the section as an operation of choice, but it is an operation which, as compared to craniotomy or prolonged and forcible high forceps work without it, involves al-

most no increased risk of life. He therefore believes it to be the operation of choice in the somewhat limited number of neglected cases (*i.e.*, those for which the Cesarean is ruled out) in which the pelvic contraction is within the range where the extraction of a living child without symphyseotomy is difficult or impossible, but after symphyseotomy is safe or easy. The induction of premature labor for contracted pelvis results in so high a fetal mortality as to be unwarranted when placed in opposition with the performance of the Cesarean section at the beginning of labor and in favorable cases.

Young Primiparæ.—That labor is not unusually hazardous for very young women would appear to be proved by the statistics of H. Pannetier.² He has collected 281 cases of labor in women below the age of 17, at the Tarnier Clinie. Pregnancy usually reached term. There were no abnormal presentations. The average duration of labor was only fourteen hours and nine minutes. Forceps were employed in 16 cases.

Infiltration of Urine after Labor.—F. Horn³ reports an unusual case. For three days after labor everything went well; then signs of acute sepsis developed and in two days death occurred. The space of Retzius and paravesical region were infiltrated with urine. A fistula was found leading from the cervix to the bladder. This was attributed to long-continued pressure of the head during labor.

Tubal Gestation.—Alban H. G. Doran⁴ reports a case of tubal gestation in which the gestation sac lay in front of the uterus and adherent to the bladder, uterus, and appendix.

GYNECOLOGY AND ABDOMINAL SURGERY.

Retroversion of the Uterus.—J. Clarence Webster,⁴ when operating for this condition, opens the abdomen, frees and brings forward the uterus. A small hole is then made through the broad ligament on one side under the utero-ovarian ligament near the uterus. Through it a pair of forceps is passed from behind, in order to grasp the round ligament about an inch from its uterine end. It is then pulled through the broad ligament in a double fold. It is carried across the posterior surface of the uterus a short distance above the utero-sacral ligaments, and is stitched in this position with chromic catgut. A similar procedure is done on the opposite side. Each ligament is stitched to the hole in the broad ligament. He claims there is no possibility of any interference with pregnancy and labor, and that the normal range of uterine movements is not materially altered.

Fibroid Tumors.—Charles P. Noble⁵ is of the opinion that there are very few fibroids which do not cause trouble and that operation is more advisable than expectancy. From his individual experience he believes that small multinodular subperitoneal fibroids in women over 40 years of age are the least apt to grow and cause serious symptoms. In young women submucous and

intramural fibroids are most apt to develop and cause serious trouble.

Hernia after Abdominal Section.—A. Gibson⁶ cites the case of a rupture of the abdominal wall at the scar of an abdominal section done ten years before. The patient was at stool, and, while pressing on the abdomen to facilitate the passage of feces, the abdominal wall gave way at the old cicatrix and the intestine protruded. There was considerable bleeding and the patient died in fifteen hours.

Kolpeurynter.—The quicksilver kolpeurynter described by L. Pincus⁷ is advocated by him. Aside from its use as an obstetrical dilator, he favors it for obtaining massage of the pelvic organs.

L. Huppert⁷ claims excellent results from this instrument in vaginismus. In the majority of cases pregnancy soon followed treatment.

Chronic Pelvic Exudates.—O. Polano⁸ favors the treatment of chronic pelvic exudates by a pelvic hot-air bath. It is administered in a machine such as is employed for hot-air baths of the entire body, but enclosing only the middle portion of the body.

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⁴ Jour. Am. Med. Assoc., Oct. 5. ⁵ Int. Med. Mag., Aug. ⁶ Canada Pract., Sept.
⁷ Cent. f. Gyn., No. 32. ⁸ Cent. f. Gyn., No. 30. ⁹ Lancet, Sept. 14.

DISEASES OF CHILDREN.

The Bacteriology of Gastro-enteritis.—An editorial¹ states that the impulse to the bacteriological investigation of summer diarrhea was not given until Escherich in 1886 published his work on the intestinal bacteria of infants and their relation to the physiology of digestion. Lesage, Hayem, and Baginsky contributed further researches, but the most important and exhaustive studies were made by Booker from 1886 to 1897. As the result of these he called attention to three principal forms of summer diarrhea, based on a correspondence of their clinical, anatomical, and bacteriological features: (1) dyspeptic or non-inflammatory diarrhea, in which the obligatory milk-feces bacteria are found, chiefly the bacillus coli communis, the bacillus lactis aerogenes appearing in smaller numbers; (2) streptococcus gastro-enteritis, in which there is a general infection and ulceration of the intestine, with streptococci as the predominating forms, some bacilli being present as well; (3) bacillary gastro-enteritis, characterized by a general toxic condition with less intestinal inflammation, and the presence in the stools of several varieties of bacilli, the proteus vulgaris being the most common. Escherich studied the streptococcus cases more closely (1897-1899) and found the cocci numerous and in almost pure culture in the stools in acute, severe cases, while it was possible to isolate them from the urine and the blood dur-

ing life and from the viscera after death. Clinically, the symptoms vary much in the mild and in the severe cases; the stools may be watery or contain much pus and blood. Staphylococci have also been found in diarrheal stools, but much less frequently than streptococci. Later Escherich described cases of dysentery due to a virulent colon bacillus; Valagnssa found a bacillus belonging to the colon group and identical with that isolated by Celli and Fioeca from cases in Italy and Egypt. In 1898 Shiga, in Japan, described the bacillus dysenteriae, an organism more nearly related to the typhoid than to the colon group, and Flexner found the same bacillus in one form of acute dysentery studied in Manila. Both Celli and Escherich tried to identify the bacillus they described with that of Shiga. The bacillus pyocyaneus has also been found in the stools of cases of epidemic infantile dysentery. It is evident, then, that no specific bacterium of gastro-enteritis has been found; that there is one form in which the streptococcus is the predominating organism; and that the bacillus dysenteriae may possibly be proved to be the cause of epidemic dysentery both in children and in adults.

Enuresis in Childhood.—Thiemich³ considers this condition, when occurring in a child who has been clean for months or years, and who shows no sign of organic disease of the urogenital or nervous system, as a sign of that general neurosis—hysteria. In children hysteria usually occurs in a monosymptomatic form. The children who suffer from enuresis at some period usually come of a neuropathic family and later show other symptoms of hysteria.

Excellent results are obtained by means of painful faradization, not necessarily of the sphincter vesicae, but of the arms, back, or thighs. Care should be taken to prevent the impression that the treatment is a punishment, but instead it should be explained that the measure is certain of success, even though painful. More than one session is rarely required, if care and tact be exercised. As in all forms of hysteria, isolation and removal from home are the most potent of all remedies.

Family Amaurotic Idiocy.—Falkenheim⁴ reports 4 cases observed by himself, and reviews the literature, which comprises 64 cases hitherto reported. Of these, 30 occurred in America, 11 in England, and 23 on the Continent of Europe. Twenty-seven were single cases, and 37 were distributed among thirteen families—5 occurring in one family, 4 in two, 3 in four, and 2 in six.

Thirty-eight children died, all but two before the end of the second year. One case still lives at the age of 8 years. Autopsies were performed in 11 cases. The pathological process is one of degeneration (not inflammation) of the cortical nerve cells, the tangential and radiating fibres, the pyramidal tract throughout its entire course, the optic nerve, and the ganglion cells in the retina. It is possible that a developmental error will be demonstrated as the anatomical basis for the deficiency in

power and resistances of the central nervous system. No satisfactory cause for the disease has as yet been found, nor is any treatment of value.

Gangrene of Arms and Legs after Scarlet Fever and Other Infectious Diseases.—Eichhorst⁵ reports the case of a four-year-old girl who had an unusually severe attack of scarlet fever. At the end of the third week signs of embolism of the popliteal artery suddenly appeared in the left foot and leg. Gangrene progressed until the line of demarcation was sharply marked above the lower half of the leg. Amputation was done and the child made a good recovery. A thrombus was found in the left popliteal artery one centimetre above its bifurcation, extending into both the anterior and posterior tibial arteries for the same distance. The popliteal artery showed signs of endarteritis. Pure cultures of the streptococcus pyogenes were found in pus from a left-sided otitis media and from an abscess on the forehead.

Only two other cases of gangrene following scarlet fever are reported in medical literature. Both lower extremities were involved in these cases, which occurred in boys aged 4 and 9 years respectively. In all, 166 cases of gangrene in infectious diseases were collected, and of these typhus (42), typhoid (40), and influenza (19) furnish the largest number. Five followed measles, one diphtheria, and one varicella.

The Graver Complications of Chronic Purulent Otitis Media.—Herbert F. Waterhouse⁶ is convinced that the vast majority of grave complications of purulent otitis media result from neglect of treatment of otorrhea, and that medical men do not seem to realize the awful dangers to which patients the victims of chronic purulent otitis media are exposed. He is certain that he is well within the mark when he says that on the average he sees at least every fortnight a patient whose life is in jeopardy owing to some complication of purulent otorrhea. These complications are: 1. *Aural polypi*, which may be mucous, fibrous, or myxomatous. More than 90 per cent of these originate in the mucous lining of the tympanum, and they constitute a very serious disease. Removal of the polypus is the treatment to be adopted, but it must be preceded by purification of the cavity of the tympanum by a solution of the biniodide of mercury, 1:3000, in rectified spirits, introduced thrice daily, the polypus being removed by cutting through its pedicle with a Wilde's snare or by twisting with Toynbee's forceps. 2. *Purulent inflammation of the mastoid antrum and mastoid cells, including caseous and cholesteatomatous masses, and necrosis and caries of the walls of the tympanum, mastoid cells, and antrum.*—Operation on the mastoid is recommended in which chronic otorrhea is found in association with (1) continuous or frequent pain in ear, mastoid, or side of head, particularly when such pains are aggravated by percussion over the mastoid process; (2) total loss of hearing, with frequent attacks of giddiness, suggesting purulent involvement or destruction of parts of the in-

ternal ear; (3) caries or necrosis; (4) polypi and granulations that recur after removal, and resist careful treatment with the biniodide and spirit ear-drops; (5) caseous deposits and cholesteatomata; (6) facial paralysis or paresis, which is frequently due to caries or necrosis of the bony canal in which the nerve lies; (7) distinct symptoms of intracranial abscess, meningitis, or lateral sinus infective thrombosis. 3. *Paralysis of facial nerve*.—The prognosis of this trouble, when secondary to ear disease, is, in general, fairly good, the large majority of cases unassociated with bony disease recovering completely as the result of treatment directed to the casual ear disease, generally purulent otitis media. Even in the worst cases, those dependent on disease of bone, recovery, complete or more frequently partial, may follow the extrusion of a sequestrum. 4. *Ulceration of vessels*.—This is fortunately rare. The author has been consulted in only two cases, of which in only one was the hemorrhage seen by him. Both were due to caries or necrosis of some part of the petrous portion of the temporal bone. 5. *Meningitis*.—The most fatal complication of purulent otitis media is purulent leptomeningitis, the form which attacks the pia mater and arachnoid membranes. In pachymeningitis the inflammation is more localized and the dura mater is chiefly involved. Extensive purulent leptomeningitis is probably in all cases fatal, but it must be borne in mind that recovery frequently follows clearing out the mastoid cells and antrum and the middle ear in cases in which infective meningitis has been diagnosed by the most skilful observers. 6. *Abscess of brain*.—The great majority of brain abscesses owe their origin to purulent otitis media, but of a hundred cases of brain abscesses secondary to purulent ear disease, 75 per cent will be in the temporo-sphenoidal lobe, nearly 20 per cent in the cerebellum, and in 4 per cent two abscesses will be found, one in the temporo-sphenoidal lobe and the other in the cerebellum, and in almost every instance they will be found to have originated in old neglected otorrhea. Unless relieved by operation the great majority of intracranial abscesses terminate in death. The result of operative treatment, in cases uncomplicated by the coexistence of meningitis or lateral sinus pyemia, is far more favorable than is generally believed. 7. *Pyogenic lateral sinus thrombosis*.—This condition is more common than is usually supposed. It may arise from direct continuity of inflammation, as when the sinus becomes involved in disease of the inner wall of the mastoid process, or it may spread from a pyogenic thrombus in a minute vein entering the sinus. Headache and vomiting, pain on tapping over the situation of the lateral sinus at the hinder part of the mastoid process, and pain on pressure over the upper two or three inches of the course of the internal jugular vein, rigors early in the disease and often of extreme violence, harsh and somewhat icteric skin, dry and dirty tongue, foul breath and diarrhea in later stages, are symptoms which, in conjunction with the general typhoid state of the patient, have sometimes led to a mistaken

diagnosis of typhoid fever, but are characteristic of the affection under discussion. The invariable rule of practice must be incision of the sinus and clearing out the clot and puriform débris, with division of the internal jugular vein between two ligatures.

Hemophilia Neonatorum.—J. G. William Greef⁷ reports three cases, two of which were fatal. One of the latter was more pronounced than any with which the author has met in the literature of the subject. Twelve hours after its birth the physician noticed a marked swelling on its cheek; twenty-four hours later the child was anemic and in collapse, and the swelling had increased in size. Death occurred three hours later. The post-mortem presented an hematoma the size of an apple between the fascia and the subcutaneous fat of the left cheek. Lungs were anemic, right auricle filled with fluid blood, the other chambers of the heart empty. A large amount of fluid blood was in the abdomen; the subcutaneous tissue of the whole body and in greater part the muscular tissue were infiltrated, while the joints contained small quantities of fluid blood. No organic disease or septic condition could be found, no inflammation of the navel veins, no abnormality of the epiphyses of the femur, the liver, kidneys, etc. There is no doubt that all three were marked cases of hemophilia, and in none did the mother give any history of the hemophilic tendency in her own person or in those of her nearest relatives. The author reviews the various theories held in regard to the origin of this disease, and inclines to the belief that it rests upon abnormal permeability of the vascular walls.

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¹ Arch. of Ped., Aug. ² Clinical Rev., Aug. ³ Berl. klin. Woch., vol. xxxviii., No. 31. ⁴ Jahr. f. Kinderheilk., vol. liv., No. 2 ⁵ Deut. Archiv. f. klin. Med., vol. lxx., Nos. 5 and 6. ⁶ Edin. Med. Jour., Sept. ⁷ Pediatrics, Aug. 15.

ITEM.

At the annual meeting of the New York Obstetrical Society, held October 8, 1901, the officers elected for the year 1901-1902 were: *President*—Malcolm McLean, M.D.; *First Vice-President*—J. Riddle Goffe, M.D.; *Second Vice-President*—Le Roy Broun, M.D.; *Recording Secretary*—George L. Brodhead, M.D.; *Assistant Recording Secretary*—George G. Ward, Jr., M.D.; *Corresponding Secretary*—E. E. Tull, M.D.; *Treasurer*—J. Lee Morrill, M.D.; *Pathologist*—W. S. Stone, M.D.

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ORIGINAL COMMUNICATIONS.

ABLATIO PLACENTÆ.*

A STUDY BASED UPON TWO HUNDRED CASES IN THE LITERATURE.

BY

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(With four illustrations by PHILIP P. S. DOANE, M.D.)

THE condition of premature detachment of the normally situated placenta is one which has been given too little attention by obstetricians; its frequency has been greatly underestimated, its mortality has been judged too high, and its treatment is still a moot question. The paucity of cases diagnosticated and reported has a foundation on a misconception of the scope of Goodell's¹ paper, which dealt with a certain type (the concealed cases) of detached placenta, not the whole subject as considered by some writers; on the absence of clear description of the condition by many writers; and, finally, the tendency to consider all ante-partum hemorrhage as previal from the erroneously held notion that premature detachment is a very rare complication. As no

*Inaugural Thesis presented to the Chicago Gynecological Society, Sept. 20, 1901.

complete statistical study has been made since Goodell's paper appeared. it seems meet to present the composite of writers of the past thirty years.

So there may be no misunderstanding of the significance of premature detachment of the placenta, I would define it as follows: When the placenta is attached to the uterus above the contraction ring of Schröder² or retraction rim of Barbour³—that is, above that portion of the uterus which must dilate to permit the egress of the fetus—and from whatever cause, whether it be a pathologic change of the utero-placental union or violence done the organism, the placenta is partially or wholly detached in pregnancy, or labor before the completion of the second stage, a condition of premature detachment obtains. Certain factors which govern this definition will be elucidated in due place. In certain respects this condition has analogy to the initial stages of abortion.

Retrospective.—Without going into a lengthy historic résumé of the subject, I shall touch upon certain salient features which owe their existence to past observers. Up to 1664 the knowledge of hemorrhage in pregnancy and labor was largely the information handed down from Hippocrates, who held that antepartum bleeding was always due to a separation of the placenta from the fundus uteri where it was invariably attached; when the after-birth was found at the os, placental prolapse had occurred. In 1664 Paul Portal⁴ clearly demonstrated the error of observation made by his predecessors, and in unequivocal terms stated his new discovery that sometimes the placenta was adherent to the lower portion of the uterus—was previa. In 1709 Gottlieb Schacker⁵ made a postmortem examination on a woman dying in labor from antepartum hemorrhage and found the placenta adherent at the os internum, but it attracted no attention at the time. Giffard⁶ probably independently recognized placenta previa, and Smellie⁷ and Levret⁸ each added their mite to the knowledge of previa, but did not clearly differentiate between it and separation of the placenta when high up on the uterine wall. One of the strongest refutations of the probability of placental prolapse was the discovery by Nortwick⁹ of the fine filaments on the surface of the chorion—the remnants of the chorion leve and decidua reflexa—and the actual discovery of the decidua reflexa by Hunter about 1770. Ten years after Levret issued his dissertation, Rigby¹⁰ published his thesis, “An Essay on the Uterine Hemorrhage which Precedes the Delivery of the Full-

Grown Fetus," and classified all these hemorrhages into "accidental" and "unavoidable," names which continue to denominate the two forms of bleeding—that from premature detachment and previa. I think full credit should be accorded Rigby for presenting a clear and original dissertation on placenta previa to the English-speaking world, but beyond that I do not think his laudations should go. Since his paper has left the deepest impress upon obstetric literature, I hold it appropriate to show that his teachings cannot be reconciled to our present knowledge; further, I believe that his so-called "accidental hemorrhage" is nothing more nor less than our placenta previa lateralis. On page 14,¹⁰ after correctly maintaining that the proximate cause of all considerable bleeding was due to the separation of the placenta, and that its (the placenta) usual site was such that it did not separate until the completion of the second stage, he continues in these words: "In this case, then, when a flooding comes on before the delivery of the child, it is obvious that the separation of the placenta must be owing to some *accidental* circumstance, to violence done the uterus by blows, or falls, or to some peculiar laxity of the uterine vessels, from badness of habit, or fever, or influence of the passions of the mind. . . . But from the uncertainty with which (as before observed) Nature fixes the placenta to the uterus, it may be so situated that, when the full term of pregnancy is arrived and labor begins, a flooding *necessarily* accompanies it and without the intervention of any of the above *accidental* circumstances; that is, when it is fixed to that part of the womb which always dilates as labor advances, namely, the *collum* and *os uteri*, in which case it is very certain that the placenta cannot, as before described, remain secure till the expulsion of the child, but must of necessity be separated from it in proportion as the uterus opens, and by that means a hemorrhage must *unavoidably* be produced." According to this definition we have two types of placental location—one when the placenta is attached to the collum and os, and the other when it is attached above these points. It would be quibbling with words to declare Rigby implied necessarily the *placenta must be at the os* to come under his interpretation of unavoidable bleeding, if a close study of his 106 cases did not offer the most positive corroboration. In the reports of his 42 cases of unavoidable hemorrhage the placental findings are recorded as the placenta "was at," or "on," or "attached," or "fixed" to the os, or was "presenting." *Per contra*, of the 64 remaining

cases, 54 had the above expressions used qualified by "not," 9 had no reference of the placenta ante partum, and 1 had a fundal attachment requiring manual removal. Undoubtedly he did have some cases of true premature detachment among these 64 patients, but it is impossible to differentiate them from the lateral previa cases which the majority unquestionably were. Again, Read¹¹ credits these 42 instances of previal hemorrhage as follows: 24 complete, 3 partial, and 13 uncertain, which figures agree with my findings. It is known that complete placenta previa bears a relation to lateral implantation of 1 to 3 to 6. This further suggests that his 63 cases of "accidental hemorrhage" were but lateral previas. Too, his treatment of accidental hemorrhage by puncturing the membranes usually is the safest and best for lateral previa, and is an uncertain expedient for a true separation of the afterbirth. His declaration, on page 16, that palliative measures would answer for accidental hemorrhage is at variance with clinic experience and teaching of the present time, *i.e.*, as the routine treatment. On these grounds, then, I strongly object to the further use of these terms, accidental and unavoidable bleeding, for Rigby did not differentiate between true detachment and previa. In addition an error is committed when we use *accidental* in this relation, for Rigby applied it in its etymologic sense, while most writers accept it in the sense of a casualty. As premature detachment of the normally situated placenta is a cumbersome name, it should be substituted by a term which will be succinct, clear, and equally effective in all scientific languages: to meet these indications no phrases will answer so well as *placenta ablata*, or *ablatio placenta*. The latter has its analogon in *ablatio retinae*.

Naturally the line of demarcation between the placenta loosened in the process of dilatation of the os, placenta previa, and *ablatio placenta* must be an arbitrary one, yet Barnes¹² in 1847 was the one to differentiate between the two on theoretic grounds which largely met all clinic indications; his theory was frequently elaborated and perfected, until in his "Obstetric Operations"¹³ his theory was completely formulated. In substance his theory has its foundation on these points: the flexed head, if measured about the biparietal diameter, will give the circumference of a circle which will denote the extent the os and dilating zone of the uterus must open to permit the head to pass through; on the head this circumference is about three inches from the centre of the vertex; three inches from the undilated

os externum, measured along the uterine wall, will give the location of his lower polar circle—that is, a distance the finger can ordinarily reach in vaginal examination. M. Duncan¹⁴ brought the subject more prominently before the profession by assailing Barnes' deductions, but really contributed nothing new. While Barnes and Duncan were theoretically correct, they were in ignorance of one vital fact—they had no real conception of the importance of retraction of the uterus, that is, the formation of the retraction ring. Bandl,¹⁵ Schröder,² and Barbour³ have offered clinically what Barnes had worked out in theory. The

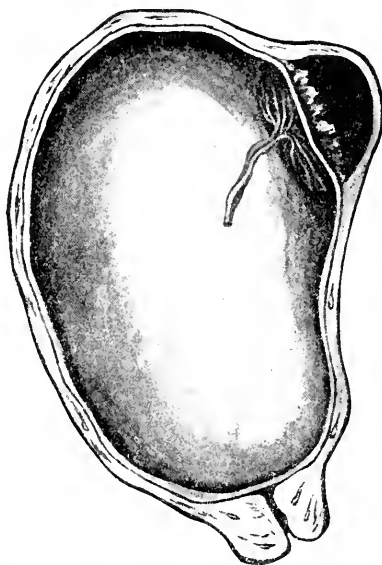


FIG. 1.—Retroplacental clot; placental rim adherent. (Albinus' case. Semi-diagrammatic.)

site of the retraction ring cannot be determined at the beginning or before labor, active contractions are prerequisite for its production; its potential location may be measured approximately as from 10-13 centimetres from the os externum before labor; of this distance 3.5 centimetres (Barbour¹⁶) are cervical, and from os internum to the ring 6.5 to 9.5 centimetres (Hart¹⁷). Barnes¹⁸ in 1892 again came forward and brought theory and fact together by maintaining the coincidence of his lower polar circle and the retraction ring. It must not be lost sight of that sometimes placenta may so encroach upon the neighborhood of the retraction ring that slight separations take place after re-

traction is marked, and hemorrhages appear late in labor; a correct diagnosis is only possible by a postpartum inspection of the membranes.

Although Albinus (Fig. 1) reported a classic example of total concealment of the effused blood in ablatio placentæ, and Baudelocque¹⁹ saw several instances, Baudelocque the younger²⁰ gave the clinic picture of its evidence and gave it its name of "concealed accidental hemorrhage." His thesis before the French Academy was ably but fallaciously refuted by Mme. Boivin¹ on these objections: that neither she nor Mme. Lachapelle had seen an instance in over 42,000 labors, and "I cannot believe that the uterus, filled with the product of conception, can at any stage of gestation admit so considerable a volume of blood, unless it has recently been emptied, nor can the quantity be sufficient to occasion the death of the woman." The fallacy of Boivin is that of Hodge,² who held the uterus to be a *plenum*—a supposition which was held false long before by Hunter,²² who declared the uterus was not tightly packed by the ovular mass, but was "only three parts full." In 1869 Goodell published his paper, which has been the guide for nearly all writers since on this subject. He collated the findings of Tanner²³ and Hicks²⁴ with fresh material culled from the literature. Goodell recommended for the treatment the rupturing of the membranes, application of the binder, "whilst other means are resorted to," as version, forceps, and dilatation of the os. He, as did Hicks, made a mistake in accepting the nomenclature of Baudelocque, for the caption of his paper was "Concealed Accidental Hemorrhage," yet 27 per cent of his 106 cases had external bleeding; if a thing or sign is manifest to the eye, it cannot be concealed. Brunton,²⁵ Meyer,²⁷ and Coe²⁸ have in a general way considered the subject statistically without recording the cases upon which they based their deductions: Storer²⁶ made deductions from some 30 to 40 cases added to those of Goodell, but his paper received too little comment.

Frequency.—The frequency of ablatio placentæ cannot be expressed in satisfactory figures: in some large clinics no cases have been observed, or, better, have not been diagnosticated, while men of limited experience have had the opportunity of seeing several. Spiegelberg²⁹ states small detachments are not infrequent and call forth no symptoms, and only are recognized post partum by the presence of old retroplacental clots adhering to that structure, or even buried partially within its tissue.

A priori we may state that if routine inspections of membranes and placenta were practised more cases would be discovered. Brodhead,³⁰ of Sloane Maternity, found in 1,000 histories 7 references of small, retroplacental clots of antepartum origin, as described by Spiegelberg; in 5,900 labors 57 had some antepartum hemorrhage due to placental separation. Here I would point out that care must be taken not to mistake Schultze's retroplacental clots for the distinct apoplexies of the utero-placental union. In the Chicago Lying-in Hospital and Dispensary some 6 cases in 3,600 labors have been observed, in only 2 of which was treatment considered necessary. Smyly,³¹ in two reports of the Dublin Rotunda, showed a total of 70 cases of "accidental hemorrhage" and 41 of previal bleeding in 6,453 labors; of the former most were of little consequence. A former assistant master of the Rotunda, in discussing the subject, said he had seen many so-called accidental hemorrhages, but had seen few which were really of that nature. Without this statement it would be hard to reconcile these figures of the Rotunda with an entire absence of the complication in the New York Lying-in Hospital³² among 10,000 cases. In the latter institution I believe the entire absence may be ascribed to errors in diagnosis. Churchill,³³ about 1840, found in 68,982 labors, obtained from various sources, 85 accidental and 174 previal hemorrhages. Based on the statistics of Brodhead and the Chicago Lying-in Hospital, I would make a proximate estimate of the frequency of the condition as 1 in 200 as of pathologic interest and 1 in 500 for clinic importance. As to the frequency of the absolutely concealed cases no figures may be adduced; they are rare, but would be more often recorded if recognized; my cases combined with Goodell's show only 113 reports of absolute concealment were accessible to us. In all probability many sudden deaths in pregnancy and labor are due to this form of the hemorrhage.

Original Cases. CASE I.—Mrs. H. B., Russian Jewess, age not known, IXpara, term; Chicago Lying-in Dispensary, service of Dr. De Lee. Previous pregnancies normal, with exception of one miscarriage. Pelvis normal. Pendulous abdomen from rapid child-bearing. Labor began December 23, 1897, 10 P.M. December 24, 1:30 A.M., cervix was partially effaced and os admitted one finger; membranes not palpable. Head in R. O. P. Strong contractions; slight, occasional hemorrhage. 10 A.M., os admitted three fingers. Contractions very severe, but labor progressed very slowly for a multipara. 2:40 P.M., com-

plete effacement and dilatation. 2:45, spontaneous rupture of membranes. For some time contractions had been irregular; mother getting weaker; hemorrhage more severe. Preparations made for instrumental delivery, but birth spontaneous at 3:30. Child asphyxiated; weighed 10 pounds; length 52 centimetres, Placenta expelled with child, and old clots and dark blood. Placenta showed areas of partial separation, and near one border a depression was visible, the size of a hen's egg, which was filled with an old clot. Placenta normal macroscopically. Opening in membranes on side. Child died in thirty-six hours from broncho-pneumonia. Duration of labor, seventeen and one-half hours; of condition, about fourteen to fifteen hours.

CASE II.—Mrs. M., aged 25, IIpara, eighth month. Urine clear at last examination; has had some endometritis for some years. Had just moved into a new home the preceding day, but claimed she had done no work in moving. April 25, 1899, 2 A.M., awoke feeling sick; had some abdominal pain. At 4 A.M. hemorrhage presented itself after severe emesis. At 6 A.M. a physician was sent for, who applied tentative measures. Hemorrhage shortly ceased; thereafter only slight oozing. Diagnosis of placenta previa was made. At noontime a tampon was introduced. No labor, but some pain. I arrived at 12:30 P.M. Woman was sitting up in bed, nervous; lips and conjunctivæ pale. Pulse 100, temperature normal. No contractions. Head movable above brim in L. O. P. Other attendants thought they heard heart tones, but they were not heard by the writer. Uterine souffle very distinct to left and below navel; uterus to ensiform, tense; extremities to right, and anterior shoulder easily palpable some three to four inches to left of mid-line. Salt solution given rectally; watched. At bedtime woman claimed she felt strong fetal movements, and then shortly the baby became quiet. Slight oozing by tampon at 2 to 2:30, then became more marked. Salt solution again given rectally. Shortly after 3 P.M. patient was placed on a table, chloroformed; tampon was removed. Clots found in vagina and cervix; membranes intact; os admitted two fingers; effacement begun; sagittal suture in first oblique, L. O. P., head floating, boggy, compressible, and sutures marked. The hand in vagina was unable to feel placental tissue. Determined child was dead. Uterus had grown some larger. When hand was removed dark blood escaped. Bleeding continuing, determined to deliver in interest of mother, her pulse being about 110 at this time. De Ribes bag was intro-

duced, and shortly good contractions were noted; when os was dilated so as to admit four fingers, the bag broke: at the same moment the membranes ruptured and old blood gushed out. Dilated with fingers, applied forceps, and then used Dührssen's incisions. Extraction of the persistently occiput posterior very easy in conjunction with Kristeller expression; craniotomy not done, as other attendants held the child still lived, and mother, too, was a Catholic. With the child came a gush of old clots and free blood. Placenta removed manually from upper and posterior wall of uterus. Placenta (Fig. 2) had a depression on maternal surface covering about one-sixteenth its area, and with a firm old clot adhering thereto. Opening in membranes three and

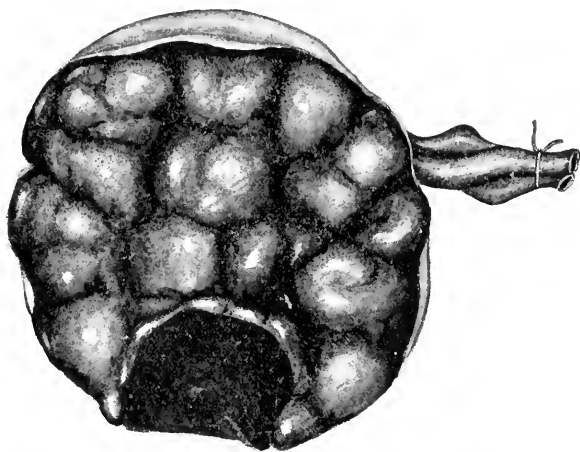


FIG. 2.—Maternal surface of placenta, showing depression produced by clot on the inferior border. (Author's case.)

one-half inches from placental border. The circular sinus was ruptured, probably occurring when bag broke. The left incision had gone to vaginal vault, the right not so deep. Uterus freed of clots, intrauterine douche of lysol given, and persistence of bleeding required an intrauterine tampon of iodoform gauze. During delivery subcutaneous salt solution was given twice, and twice post partum—in all about three quarts. Compression of uterus secured manually and by binder. Child weighed six pounds, was slightly macerated. Ether, strychnia, ol. camphoratum, and Parke, Davis & Co.'s hypodermatic ergot were given hypodermatically. At 4:30 P.M. patient was placed in bed; died at 6 P.M. from hemorrhage and shock. During delivery there

was a constant flow of blood. Duration of labor, one to two hours; of condition, about fourteen hours.

Etiology.—The causes of ablatio placentæ have been divided into exciting and predisposing. The former comprise such accidents as falls, jars, blows on the abdomen or elsewhere; violent exercise, including walking, running, lifting of heavy weights, and coitus; the effects of mental perturbation, as fear, anger, sorrow, and even excessive joy; and a short cord. Unquestionably all these diverse factors may and do have some influence in producing a separation of the placenta, but I am of the belief that these causes *per se* have been most grossly exaggerated by all writers on this subject. The trivial accidents attributed to the causation are not worthy of consideration, and should be placed in the same category with the slight injuries which so frequently attract attention to a tubercular arthritis or osteitis and are ascribed by the laity as the cause of the process. J. Ramsbotham²⁴ long ago stated: "The attack rarely follows the immediate application of a supposed injury; a lapse of some time usually intervenes." It is my opinion that these factors are seldom of any consequence, unless there be a coincident pathologic change of the serotina; then the accident is but contributory to the condition—a position taken by Sebasta.²⁵ On the other hand, violent accidents undoubtedly may and do produce a separation of the afterbirth by concussion. To go into a statistical study of these diverse causes would be but to traverse the ground of others; Goodell has done more than ample justice to them. Suffice it to say, in my collection 67 had an accident as the cause; 27 had a pathologic basis associated with accidents; 6 were supposed to have been due to short cords.

The second group of causes, the predisposing, are the most essential, for to them we may ascribe nearly all the cases. These predisposing factors may be classified as physiologic and pathologic. Jacquemier²⁶ contended that the immense ramification of the uterine sinuses, and the relation to them of the small calibre of the ovarian and uterine veins, predisposed to blood stasis; whatever produced an engorgement or a congestion would so alter the utero-placental relations as to disrupt the delicate barrier between maternal and fetal circulations, causing a retro-placental hemorrhage. This physiologic condition was amply elucidated by Mesnard²⁷ before 1723. Cazeaux²⁸ believed the double circulation was the cause. Gendrin²⁹ thought that uterine contractions could tear the placenta from its site. I hold with

Sänger⁴⁰ that contractions *per se* never can do this, unless there be a retroplacental clot and bleeding still be active; then the mechanism is analogous to Schultze's mechanism for the third stage. The physiologic causes are evidently more potent *pari passu* with the progress of gestation; my statistics are corroboratory of this: In 157 patients the length of gestation was as follows: in 6 in the fifth month, 4 in the sixth, 29 in the seventh, 62 in the eighth, 52 in the ninth or term. Labor comes on at term in placenta previa, according to Read,¹¹ in only 19 per cent of all cases, while in ablatio placentæ labor takes place at the completion of gestation in 33.1 per cent, or, according to Goodell, in 50.5 per cent.

The pathology of the future will clear up most of the mistiness concerning the actual etiology. From our present knowledge we may perhaps declare that endometritis is the most fruitful cause; multiparæ are more prone to endometrial disease than primiparæ, and ablatio placentæ is more frequent in the former than latter. In 156 women 30 were primiparæ, 19.2 per cent; as primiparous labors are about 25 to 33 per cent of all confinements, women in their first labors are distinctly safeguarded against the accident. The older the woman grows the more likelihood exists of endometritis; my figures show that in the three decades, 16 to 25, 26 to 35, 36 to 45, ablatio occurred 17 per cent, 53.7 per cent, and 29.8 per cent, respectively, but in the last decade only about 10 per cent of labors occur. This fact is in direct consonance with parity. The same pathogenic germs which produce inflammations in the non-pregnant are equally effective in the gestational period, although the inflammatory process usually antedates the pregnancy—is a chronic condition. Winter⁴² gave a new impetus to the investigation when he reported 3 cases of ablatio, accompanied by renal changes, in which endometritis was concomitant; Hennig⁴³ and Weiss⁴⁴ corroborated his findings. Lehman⁴⁵ quotes Rousseau-Dumareet, who found 11 cases of albuminuria in 13 instances of detachment, and in the Clinique Baudelocque it was present in 24 of 31 cases. Calcareous degeneration of arteries is a frequent cause of hemorrhage in the body, and possibly may be a cause of retroplacental hemorrhage in old multiparæ afflicted with placental detachment, for Reinicke⁴⁶ found sclerosis of uterine arteries in two old cases of menorrhagia. The uterine changes given in my collection were designated as endometritis and decidual metritis, 3 each; scirrhus of the uterus, exudative myo-

metritis, fatty degeneration of the decidua, 1 each. Kidney changes were noted 20 times; of these 10 were called nephritis, and 10 parenchymatous nephritis, kidney of pregnancy, albuminuria of pregnancy, etc. Placental changes were mentioned in connection with kidney lesions in 9 cases.

Placental Changes.—To give all the possible causes due to the placenta would be to pass through the gamut of placental disease; only a few will be mentioned. Rokitansky⁴⁷ described placenta which had inflammatory deposits in the lobules with indications of placental separation from extravasations of blood; he held the apoplexies could be intra- or retroplacental. Syphilis, gonococci, pus cocci, infective diseases, kidney disease, etc., have been ascribed as of etiologic import in the inflammatory changes. Calcareous and fatty degenerations and fibrosis have been considered in this connection. Brunton,²⁵ Skene,⁴⁸ and Hirst⁴⁹ believe the placenta may ripen too soon and separate prematurely; this opinion probably has its origin in the German comparison of the ovum to a fruit, or to the fact that a "fatty" placenta is a frequent condition found at term. Kaltenbach and Veit⁵⁰ maintain that all placenta must have a serotinal inflammation or degeneration to separate prematurely. Here it may be well to point out that Fehling⁵¹ and Schröder⁵² declare we must go further before we may assume there is a difference between infarcts (or inflammations) accompanying albuminuria and those where the latter does not exist. The placental alterations noted in my collection include: apoplexies, 6; fatty placenta, 5; syphilis and infarcts, 4 each; the tendency to repeated abortion or hemorrhage in previous labors, 3 each; placenta morbid or changed, interstitial, serotinal inflammations, 2 each; diffuse arteritis, chorionic degeneration, purpura, alcoholism, 1 each. Hydramnion was recorded 10 times; probably many of those cases wherein an estimation of the amount of blood loss was beyond reason had a hydramnion present, the discolored liquor amnii being mistaken for blood. Only 64 of my cases had a pathologic basis of the condition given; it behooves us in the future to most carefully investigate the cases from the standpoint of the pathologist. It is a regret that a microscopic examination of the two cases presented by me was prevented by circumstances beyond control.

Unquestionably the abnormal position of the fetus has a correlation to premature detachment; from my compilation I find that in the concealed form of the hemorrhage 3 babies had a mal-

position out of 37 where positions were recorded; in the relatively concealed 10 were abnormally placed of 114; in the total of 151 cases 11.9 per cent had a malposition. This factor may be variously explained: one, that the fetal malposition alters the uterine contour to such degree that separation is predisposed; or that hydramnion is more frequent than my figures imply; or that the blood tumor may displace the fetus.

Pathologic Anatomy.—Goodell attributed the blood retention in the cases of absolute concealment to four factors: (*a*) when the placenta is centrally detached and the blood accumulates in

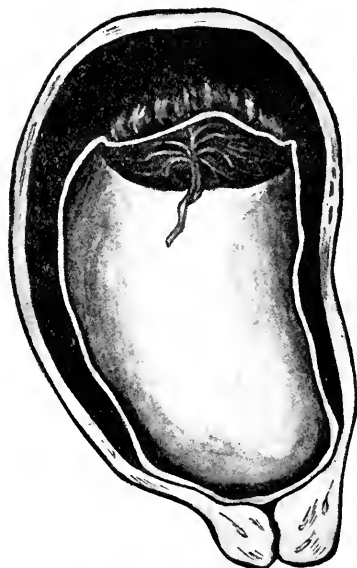


FIG. 3.—Placenta detached by coagula which covered two-thirds of the chorion; a zone, three inches wide, of adherent chorion formed dam between the clots and uterine orifice. (Gendrin: Case 19 in Goodell's paper. Semi-diagrammatic.)

the cul-de-sac formed by firm adhesion of its border to the uterus (Fig. 1); (*b*) when the placenta is so detached that the blood escapes into the uterine cavity behind the membranes and is restrained by adhesion of the membranes (Fig. 3); (*c*) when the membranes rupture near the placenta and the effused blood commingles with the liquor amnii; (*d*) when the presenting part so accurately plugs the soft parts that no effused blood can escape externally (Fig. 4); to these a fifth possibility exists, the conglutination of the uterine orifice. To (*a*), (*b*), and (*d*) no refutation is possible, but to (*c*) an exception may be taken.

On theoretic grounds it would seem that the hydrostatic pressure within the membranes would be equal in all directions; that any increase of extrachorionic pressure would correspondingly increase the intrachorionic tension, including the point of application of that pressure—*i.e.*, the site of the effused blood; that is, that the extra- and intramembranous tension would remain equal, and the membranes would remain intact so long as the membranes are intact at the os; the delicate membrane, being in contact with the uterine wall, is for the time being a part thereof and will have a tensile strength of that structure. That cases



FIG. 4.—Detachment of placenta near fundus: hemorrhage concealed by the head plugging the uterine os. (Semi-diagrammatic. Bennett's Case. No. 40.)

of high rupture have been recorded I am aware of, but I am convinced that they were not due so much to the high tension outside of the sac as to a pathologic erosion (?) of the chorion and amnion. My views are substantiated, I believe, by the findings anent this point in the symptomatology under the caption of the discoloration of the liquor amnii. The effused blood is primarily maternal, coming from the opened sinuses at the placental site; fetal blood only appearing when the placental structure is torn. Cases 19, 20, 32, 65, 112, and 124 are instances of an unusual form of placental detachment—placental

prolapse; they are only mentioned, but offer a topic for careful discussion which would be inappropriate here; of these 6, 4 recovered; all the children died.

Symptomatology.—The symptoms are of the most diverse in their clinic manifestations, much depending upon individual susceptibility to blood loss, and the resistance to shock.

Hemorrhage. The sign of blood loss was naturally the most frequently mentioned. No study from a statistical view was made, but it must necessarily be almost constant. The hemorrhage may be of two forms—one where the blood is retained totally within the uterus, forming what I have been pleased to call “absolute concealment,” the other where the retention is partial and some of the effused blood escapes externally, forming my “relatively concealed” cases. That a complete separation without blood loss is possible is evidenced by two cases (Nos. 19 and 32) of placental prolapse in which no blood was lost until after the evacuation of the uterus, when bleeding occurred from atony. See also Hart.⁵³ They may be explained on the hypothesis that a thrombosis of the uterine sinuses occurred before the separation took place; the postpartum contractions had dislodged the clots. A cardinal principle in ablatio placentæ should be that slight reliance should be placed on the amount of blood which escapes; the gauge should be the constitutional effects of the blood lost. Distension should be present in all cases of considerable bleeding, and the blood is retained entirely or partially within the uterus; its degree in the absolutely concealed type is in direct ratio to the amount of effused blood; in the partially concealed cases its extent is proportionate to the amount of blood lost and its rapidity of escape from the uterus. Its recognition requires the most careful study of the uterine contour. Its discovery is interfered with by these facts: most calls to the patients are emergency ones, and in the absence of recent examinations it is often difficult, yes, impossible, to determine the enlargement unless the uterus be irregularly augmented in size, that is, that the “accessory tumor” be present; as over one-half of all placentæ are located upon the posterior wall, as pointed out originally by Doherty⁵⁴ and later by Leopold,⁵⁵ and as most of the blood is held within bounds near the placenta, it also renders the recognition of the distension, and particularly the accessory tumor, difficult. In my case I believe the anterior shoulder was unduly prominent from the fact that the placenta and tumor pushed the fetus

forward. In my series of cases the uteri were described as distended, stretched, or some synonymous term used, in 46 cases, of which only 10 were in the absolutely concealed form; in 14 the accessory tumor was mentioned, of which only 5 were in the above class. The uterine consistence was described as tense in 22, as boggy in 18, with respectively 5 and 2 in the concealed form. The tenseness was probably present in the tonic cases, and boggy in the relatively or absolutely atonic ones. The *escape of serum* from the uterus is almost pathognomonic of ablatio placenta, and is due to the retention of blood, its clottage, contraction of the clot, and expulsion of the blood serum; this sign was noted 22 times, only 5 being in the concealed form. The *shock* is unquestionably due to the stretching of the uterus, and even the tearing of the tissue (incomplete rupture), as was so well shown by Goodell. Another sign having its origin in uterine distension is the *pain*, and is exaggerated by the grave anemia; on account of the indiscriminate use of pain as synonymous to contraction, my figures can offer little. In 54 women the sensation of pain was given, 8 as cramps, 8 as bursting, stretching, etc., in 4 the women felt the uterine distension going on, and 2 had pressure. Oftentimes the pain is peculiarly localized and may offer a clue as to the placental location, especially if this pain is localized at the site of the tumor. The *discoloration* of the liquor amnii due to admixture of blood is an unreliable sign, and the credence given it is based on slight foundation. The theory is that from a high rupture of the membranes the blood and amniotic fluid commingle. One authority in his book gives as a characteristic sign the presence of clots within the amnion: to admit this necessitates an opening in the membranes at or near the effused blood. In only one case of Goodell's six where this discoloration was mentioned was the opening present, while in my 12 no mention was made of the opening. If the fluid is colored it seems more rational to believe the hue of the fluid is due to an osmosis, or, as Lehman⁴⁵ puts it, is due to an infiltration of the placenta; also, it is probable that the escaping amniotic fluid washes the blood from the genital tract, thus receiving a reddish tinge. A valuable sign in corroboration of an earlier diagnosis is the expulsion of *old clots* and *dark blood* with the fetus or placenta, which are indices of the actual amount of blood concealed. In 32 of the 41 cases of absolute concealment mention was made of this sign; oversight in reporting or error in diagnosis may account for the 9

where it was not stated. Of the relatively concealed cases, 110 had a large amount of clotted and free blood expelled with the terminations of the second and third stages, and more would be forthcoming if the reporters in numerous instances had observed the uterine distension and subsequent evacuation of old blood. In the past much stress was given to a systolic or diastolic flow in differentiation between previa and ablatio; now it is generally held that contractions close the sinuses, thus temporarily stopping hemorrhage; in ablatio, however, the accumulated blood may be expelled with uterine systole. Also, Lusk⁵⁶ expresses an opinion quite commonly held, that the concealed hemorrhage occurs in an atonic uterus, and the relatively concealed in tonic uteri. In some cases we may rely on tonicity to prevent concealed hemorrhage, but usually it is more dependent upon a firm restraining dam than on muscular action; that such a large proportion of open hemorrhage has more or less quantity of blood retained refutes in a great measure the belief of Lusk and his followers. Finally, the fetus may offer a sign of detachment of the placenta; if the fetus suddenly develops tumultuous movements, lasting a short time, and then is quiet, either synchronously or just previous to the onset of maternal symptoms, they are indicative of interference of the placental circulation. Of course, this sign is equally characteristic of sudden interruption of funic circulation.

Diagnosis.—The diagnosis demands a close investigation of each case, and requires a differentiation of ablatio from placenta previa, uterine rupture, acute hydramnion, fainting attacks, and abdominal colics. As I have taken the stand that the two types of ablatio, the occult and the patent, are closely allied in their complexus of symptoms, differing in that the former, *ceteris paribus*, have greater distension and more pronounced symptoms, and the blood does not appear externally, rendering the diagnosis more difficult, so I shall consider the two together. The characteristic signs are: an often premonitory nausea or emesis depending on reflex causes, pain localized or general through the abdomen, with an unusual increase on pressure, and maybe continuous, tumultuous fetal movements for a brief period, uterine distension with a possible accessory tumor, an unaccountable anemia which is cleared up by uterine examination, or the often escape of blood or serum from the vagina, are strong evidences; and a failure to find the placenta within reach of the finger makes the diagnosis very certain. In

placenta previa the discovery of the afterbirth is positive, no pain so characteristic of ablatio is present, and no distension is to be met with. In rupture of the uterus the accident occurs late in labor in nearly all cases and usually after the evacuation of the waters; frequently there is a partial or complete recession of the presenting part due to fetal escape through the rent, and dependent thereon an ease in palpating the fetal parts, a diminution in the size of the uterus, and a very rapid cessation of labor—a composite rarely found in ablatio. Yet I feel sure that cases may occur where ablatio occurring late in labor may offer great difficulty in differentiating it from rupture. When uncertain of the actual differentiation between ablatio and previa lateralis, a careful postpartum inspection of the secundines will clear up all doubt; the opening in the membranes in the former instance will be some two to three inches from the nearest placental border, according to Read¹¹; old clots often will be found adherent to the placenta, and often these clots will be buried in a depression (Fig. 2) on the maternal surface, and indicate that the bleeding was restrained at first by firm placental or membrane adhesions—usually the depression is marginal, but may be central. In doubtful cases of eclamptic or fainting attacks, for instance, the hemoglobinometer and blood-counter will furnish valuable information.

Prognosis.—The outlook for the patient is very uncertain, depending upon many factors—the amount and rapidity of blood loss, shock, its onset in relation to labor, and particularly the condition of the os, its duration, and, finally, on the treatment. From what I have said under frequency it is evident that my present remarks bear *only* on those cases of more or less severity; the mild ones, as described by Spiegelberg,²⁹ probably have no direct mortality. Of my 200 cases the result for the mother was given in 189, and in 202 babies (there were five pairs of twins, but only in two did the bleeding appear before the birth of the first) 184 were mentioned. Maternal mortality was 32.2 per cent, and babies 85.8 per cent; Goodell gave the death rate as respectively 50.9 per cent and 94.4 per cent, a material gain in thirty-two years. A comparison must not be too closely made, for my cases were largely reported in a period when exact diagnoses were more possible from a knowledge of pathognomonic symptoms, so milder cases are recorded by me; *per contra*, Goodell shows that 34 cases were “posted,” and of this number

33 were recognized by the examination alone. Most properly the opinion is prevalent that the occult cases are more fatal than the patent forms; that my figures do not show this is evidence of the only relative worth of statistics, and probably fatal and mild cases rarely find their way into literature. Of 39 occult and 150 open hemorrhages the mortality was respectively 23 per cent and 34.6 per cent: Goodell's give results that are undoubtedly relatively more correct, respectively 52 per cent and 41.3 per cent. The presence of labor and the condition of the os are of vital importance, but the information given in the reports was so vague that no deductions could be made. The mortality apparently influenced by treatment will be given under the next heading.

Treatment.—In my work on this subject I was in hopes of being able to ascertain, by close examination of a large series of cases, the indications for more accurately placing the lines of treatment; that this has not been possible, as in the case of placenta previa, is due to the nature of the conditions met with in ablatio. In placenta previa an approximately positive estimate may be made of the amount of placental detachment existing and inevitably to occur before the birth of the child; we may with considerable accuracy estimate the blood loss: by Hicks' version, or hydrostatic dilatation with a later version, we have methods of treatment which in most cases will offer a reasonably safe prognosis for the mother. On the other hand, in ablatio placentæ positive information cannot be adduced from the most careful examination which will give a clear idea of the amount of placental separation, and, more essential still, the amount of detachment which will occur in the course of the delivery; as so much more must be weighed and considered in deciding on the procedure to be instituted, we cannot lay down iron-clad rules which will meet indications—each case must be decided on its merits. I have arbitrarily classified the treatment under three heads: Class 1 will comprise those cases which had no obstetric treatment given, or unmentioned in the reports (of these 7 were given), those in which the membranes were ruptured or os dilated, or both—that is, where tentative measures were applied. Class 2 will include extractive measures, as forceps, craniotomy, version, and breech extraction, with or without the preparatory measures of Class 1. Class 3 will contain all cases where the tampon was applied.

CLASS I.

	CASES.	RESULT.
Total.....	84	(in 6 unknown).. 12 died of 78 = 15 3%
No treatment	44	(in 4 unknown).. 7 died of 40 = 17 5%
Os dilated	4 1 died of 4 = 25 0%
Membranes punctured	29	(in 2 unknown).. 4 died of 27 = 14.6%
Os dilated and mem- branes punctured..	7 0 died of 7 = 0.0%

Under the respective headings the fetal mortality was 50, 72.7, 85.7, and 83.3 per cent. In sharp contrast to mine are Goodell's results—in 45 cases where no treatment was used 32 died=74.4 per cent. The dilatation of the os is of great value, both as a means of producing the condition permitting delivery, and as a mechanical irritation to the cervix is a good exciter of uterine contraction, yet I almost entirely agree with Schröder⁵⁷ that no condition exists to brutally dilate the os when the cervix has undergone no preparation for dilatation. It should be borne in mind, as Goodell found, that insensibly the cervix often has partially softened and os dilated without perceptible contractions, due, as he puts it, "to the flaccidity of the cervix and surrounding tissues resulting from the state of collapse, and also to the *vis a tergo* of an excessive distension." While I would not feel justified to refute his declaration, I am sure that often there is a confusion between the pains of the condition and the pains of the contractions: that is, that often the statement is made that there is no labor when really it is present. Dilatation was done manually in 24 cases; bags were used in 10; and incisions, as practised by Dührssen⁵⁸ and Schröder,⁵⁷ in 2 cases. The puncturing of the membranes is still a moot question; to be rational it must be founded on reason and have a clinic justification founded upon fact. Its uses were described by Puzos⁵⁹ as: to hasten labor, to permit the uterus to retract down on the fetus—the fetus acting against the placenta as a tampon, and also retraction lessens the calibre of the sinuses. The stimulation of a quiescent uterus in health by this method is uncertain; how much more unreliable it is in an atonic womb due to hemorrhage! The contractions being in abeyance or sluggish, the fluid absent will entail a lowered intrauterine tension and will permit blood to replace the escaped fluid. Ingleby⁶⁰ contended this would only occur when the waters were partially evacuated, and recommended that the presenting part be pushed up to permit all fluid to drain away; but Labs⁶¹ believed that in the latter event his *allseitig gleichmässiger Druck* is lost, which surely will

diminish the intrauterine pressure. In placenta previa lateralis the escape of the liquor amnii will permit the presenting part to descend and press more closely upon the placenta, thereby effectually tamponing the bleeding surface; in the event of the placenta being above the retraction ring we cannot rely upon the fetal contour to so accurately press upon the placental site, as was pointed out by Simpson.⁶² If we cannot depend on the pressure to stay the bleeding, much less may we rely upon slight retraction to close the sinuses. Finally, the removal of the fluid removes the hydrostatic dilating power, retards labor, and often will necessitate artificial dilatation. Atthill⁶³ and Hicks²⁴ held that the method was a dangerous one, as nearly all who had it done died. Lusk's case (No. 97) was only seriously compromised when the waters had escaped; Schröder⁵² held the most prolific source of the premature detachment was the partial evacuation of the uterus in hydramnion and after the birth of the first child of twin labors. Although many good authorities mention this method with approval, still I believe the safest course is to protect the membranes until labor may be expedited; this retains the intrauterine pressure, promotes clotting of blood; only when bleeding has ceased, and contractions are active, and the os permits delivery, should it be resorted to (Veit⁶⁴). In my cases 75 mention this method; of these, 27 gave the effect on the hemorrhage, in 16 the hemorrhage was not stopped or was aggravated, in 4 of these the head descended which dammed off the blood; 11 were alleviated, but 1 only temporarily. That 44 required further operation suggests it was tried, and, failing, was followed by extraction, although it is possible it was done preliminary to the delivery.

CLASS II.

	CASES.	RESULT.
Total.....	87	(in 4 unknown).. 32 died of 80 = 40%
Forceps.....	12	(in 1 unknown).. 2 died of 11 = 18 1%
Forceps with Class 1 ..	17	(in 1 unknown).. 8 died of 16 = 50%
Craniotomy	3 2 died of 3 = 66.6%
Craniotomy with Class 1	9 7 died of 9 = 77.7%
Breech extraction	3 0 died of 3 = 0%
Breech extraction with Class 1.....	4 3 died of 4 = 75%
Version.....	17	(in 3 unknown).. 6 died of 14 = 42.8%
Version with Class 1...	12 6 died of 12 = 50%
Kristeller	5	(2 combined with Class 1) 0 died of 5 = 0%

Goodell's figures give a mortality for forceps, version, and

craniotomy, respectively, 22.2, 35.7, and 100 per cent. Cesarean section was done twice successfully, but one had the tampon used. Labor was induced with a mortality of 50 per cent. From the above table a few *a priori* deductions may be made: the more nearly the os is prepared for delivery the more favorable the prognosis; that in some instances the tentative measures were futile, requiring extraction as a last resort; the relatively high discrepancies in the mortality of Classes 1 and 2 imply that the former was largely composed of mild cases; finally, the anemia renders the woman less able to withstand the shock incident to forcible dilatation. While it ever should be the precept of the obstetrician that a woman should not die undelivered in the hope of saving the child, in ablatio the procedure is dependent upon purely ethical grounds, for the child so constantly dies early in the accident that maternal considerations alone should obtain; therefore delivery should be decided upon before the strength of the woman is gone—shock being a concomitant of the complication, it will be exaggerated by forced delivery. In addition to the shock, the anemia and accouchement forcé predispose to inertia, so postpartum hemorrhage is a likely sequent. Craniotomy should not have a mortality above that of forceps; that my figures show that it was higher in my collection bespeaks for its earlier application. The high death rate for version was explained on clinic facts by Brunton²⁵ and Goodell; the large retroplacental blood clot may force the placenta into the uterine cavity, and, in turning, the breech is caught upon the ledge thus formed and either impedes the version or separates the placenta still further; again, if the extraction is delayed by the arms or head being caught at the brim, blood may rush into the unretracted uterus with grave results. That all women delivered by Kristeller recovered offers a key to a point in which all authorities concur—that firm, efficient compress should be applied during extraction. The fetal mortality is high, irrespective of the treatment: 70 to 85 per cent. According to Cohn⁶⁵ and Döderlein,⁶⁶ the child dies as a result of placental disease or separation.

CLASS III.

The tampon was used 29 times.....	14 died = 48.2%
In 11 it was used alone.....	5 died = 45.4%
In 18 it was used with Classes 1 and 2.....	7 died = 38.8%

Since the introduction of the tampon on definite principles by

Leroux in 1776 much has been written *pro* and *con*. Originally used indiscriminately in all antepartum hemorrhages, its use has been much restricted in later years in the treatment of placenta previa, until now its application is reserved by the best authorities to selected cases. In the flooding of ablatio its use is a moot question: such men as Dührssen,⁶⁷ Jewett,⁶⁸ Smyly,⁶⁹ Veit,⁶⁴ and others suggest its use; those who oppose it include Schröder,⁵² who states "it exceptionally is of value"; Herman,⁷⁰ who characterizes it as "a clumsy and painful method"; Lehman,⁴⁵ Barbour,⁷¹ Runge,⁷² that it may act "like a two-edged sword"; Schauta,⁷³ "that it has not the slightest purpose," etc. Practically all authorities most positively interdict its use after the waters have escaped, except Smyly,⁶⁹ who advises its use as a routine measure irrespective of the condition of the membranes. Its purpose is reputed to be threefold: to promote contractions, to produce a compress against the bleeding surface, to retain the effused blood so clotting will occur and thrombosis take place. Tweedy⁷⁴ adds a fourth: the firm compress will distend the vaginal vault, will pull on the uterine arteries, thus acting as a tourniquet. These elements may be valid in previa—are they equally valid in ablatio? From the nature of things the tampon cannot be in juxtaposition to the bleeding surface; the tourniquet action is of small moment, as the ovarian arteries are unaffected; hours may elapse before pains are produced, during that time blood may accumulate. Tweedy believed the tampon would raise intrauterine tension, but it only will increase the tension during a pain; as soon as the contraction passes off the pressure is lowered and blood again flows in, inaugurating a process analogous to Schultze's mechanism for the third stage. Jellett⁶⁹ and Lusk⁵⁶ hold that the difference between the occult and patent forms is one of tonicity, but I have already adduced reasons why this is not strictly true. The increment of blood will come irrespective of atony or tonicity. Noone advises its application in the concealed form; in the open type it only will do what the restraining dam will do—conceal the flow of blood and tardily stimulate labor. Anent this Boivin¹ stated "that internal hemorrhage in pregnancy, by over-distending this organ, is a sure means of determining its contraction; that the disease itself becomes its own remedy; that the internal loss, instead of being more dangerous, is less so than an external one, the case being that of pregnancy; that were it

otherwise, the tampon would be banished from the therapeutics of uterine hemorrhage." The tampon has no virtue which the hydrostatic dilator does not possess, and is too slow in its effects, so should be discarded for the rubber bags of Barnes, Braun, or De Ribes.

Of the 200 cases presented, 13 died undelivered; 4 had no treatment given; 5 had the tampon applied; 3 the membranes punctured; 1 died undelivered after repeated attempts at version and forceps when the os was only slightly dilated. Post-mortem Cesarean section was done twice with futile results, and forceps was used once on a dead woman.

In concluding the general topic I must not neglect a superficial consideration of constitutional treatment. In the forefront I would place the saline infusion, which may be given intravenously, subcutaneously, or rectally. The method to be employed should depend largely on the condition of the patient; the first two should be selected in all considerable or severe hemorrhages, the latter may answer in mild cases. It is of inestimable value in replacing lost blood and as a prophylaxis for shock. Two, three, and even four and more quarts may be given in repeated injections. It may be combined with gelatin solution (2 to 10 per cent), depending upon the amount of salt solution injected—possibly 10 to 20 grains may be given without injury—with the idea of promoting coagulation, as was pointed out by Carnot and Laneereaux⁷⁵; it cannot be given intravenously, from the danger of producing emboli. Stimulation may be carried out by hypodermatics of ether, camphorated oil, strychnia, digitalis, whiskey, etc., and autotransfusion. It is a debatable ground to discuss ergot in relation to indications previous to the completion of the second stage, but I feel that in ablatio, and particularly where any lack of toniccity exists, is the one antepartum condition where the drug may be given; it should be given guardedly, and never in large doses. Finally, while waiting, the binder will offer signal value; but, unfortunately, to be effective it must be tight, which causes so much inconvenience that it cannot be borne long at a time; in extraction Kristeller should supplant the use of the binder.

Conclusions.—1. The etiology of ablatio placenta is generally dependent upon pathologic conditions, and exceptionally on traumatism.

2. As a pathologic entity ablatio occurs once in about 200 pregnancies, and is of clinic importance once in 500. The dif-

ference between the occult and open types is largely dependent upon the manifestation of external bleeding in the latter; the complete blood retention in the former generally produces an exaggeration of the uterine distension, and accessory tumor, and more evident shock.

3. To put it in paradox, ablatio is an abortion in the latter months of pregnancy. The etiology is nearly identical; the mechanism has certain elements of similarity. Those cases of pathologic interest, and the mild instances, offer a parallel to threatened abortion: the patient may, and often does, tide over the difficulty and goes on to term with a living baby. The severe may be likened to an inevitable abortion, relief coming only with the evacuation of the uterus.

The treatment demands these considerations:

4. The *mild cases* must be most carefully watched. Quiet is a *sine qua non*; it may be induced by morphia. An ice bag will be of use on the uterus. Hydrastinin, which, according to Pick,⁷⁶ has a selective action on contractions of unstriated muscle, and therefore possesses hemostatic action, may be given instead of ergot. From my remarks under the caption of Frequency it is evident that probably in nearly two-thirds of the cases pregnancy will go on to term, or labor will be completed, without untoward results.

5. *Severe cases*: Treatment must be modified by the condition of the os. If the os is prepared for delivery, use forceps, craniotomy, and version, choosing the operation in the order named; version should only be selected when unimpeded breech extraction is possible.

6. *Severe cases not in labor*: As rapidly as possible labor should be induced; this may be done by friction, electricity, ergot, quinine and sugar; hydrastinin, stypticin, salt solution, gelatin solution, general stimulation will be indicated *pro re nata*. While these measures are being carried out, possibly by assistants, preparations should be made to introduce a Barnes bag. This measure, while dilating the os, is a most excellent means of stimulating uterine action; traction on the tube stem of the bag should be continuous, which accelerates dilatation and augments the cervical irritation. Later, dilatation may be completed by the larger bags, manual dilatation, or, when effacement is complete, Dührssen's incision; Dührssen's incisions have no consideration if dilatation is present without effacement, and I would suggest

that the oblique cuts offer less danger than those suggested by the originator. Complete as under 5.

7. *Severe cases in labor:* Hasten labor as much as possible; use plan outlined in 5 and 6, as may meet indications.

8. The tampon should have no place in the treatment of ablatio. The membranes should be preserved intact until delivery may be expedited.

9. Cesarean section will be of value in selected cases, but never will be popular, for the conditions and surroundings favoring celiotomy will seldom be at hand.

10. If the placenta does not follow the child at once, remove it immediately. Have all necessary equipment at hand to treat postpartum hemorrhage, which is a frequent sequence of the condition. Tampon the uterus early.

11. To quote Goodell's closing remark, "præstantissimum remedium est fetus extractio." Apply this precept too early rather than too late.

In closing this paper, the preparation of which has taken many long hours, let me but add that I shall feel amply repaid and my purpose will be fulfilled if it brings the subject anew before the profession, and stimulates it to investigate most carefully the differential points of antepartum hemorrhage and to record the findings in both mild and severe cases of ablatio, so in the future it may be possible to refine the outline of treatment. That I have so freely availed myself of the opinions of older authorities is warranted by the fact that they, as far as I have been able to ascertain, founded the beliefs held by recent observers.

387 NORTH STATE STREET.

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A CASE OF FATAL HEMORRHAGIC DIATHESIS, WITH
PREMATURE DETACHMENT OF THE PLACENTA.¹

BY

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IN presenting a history of this melancholy case to the Society, the writer wishes to elicit reports of cases bearing upon the influence that alteration of the blood or of the blood vessels has on pregnancy and labor or upon operations in general.

Three cases, occurring in three years, have forced on the writer the belief that there are alterations of the blood or blood vessels, of a temporary nature, which prevent its clotting, and thus, during labor or operations, cause death.

One was the case of a prostitute, aged 24, who entered my service at Mercy Hospital, who was delivered, without anything unusual, of a syphilitic macerated fetus of a six-months pregnancy. She went into collapse after the infant was born, skin bluish and mottled, respiration ceased, pulse weak, but she rallied. The placenta was expelled in thirty minutes by Credé expression. Ten minutes afterward, while the uterus was quite hard, there was a gush of blood. Hot douche was ineffective; masses of thick, macerated decidua were cleaned out, and the utero-vaginal tract tamponed with iodoform gauze. This stopped the hemorrhage partially, but blood oozed through the packing in such amounts that I removed the gauze and packed again as tightly as was possible. The non-clotting of the blood was evident and I called the internes' attention to it. The oozing through the packing began soon, and Dr. F. T. Andrews was summoned as counsel. I thought we would have to remove the uterus. The patient had been growing more and more anemic. We despaired of her life, as the stimulants and salt solution had slow effect, but she began to rally and the oozing grew less, so we waited. The next day the tampon was gently removed, without hemorrhage, and the patient, after a run of fever, eventually recovered. She said she was not a bleeder.

The second case occurred in the practice of one of our col-

¹Read before the Chicago Gynecological Society, September 20, 1901.

leagues. A nullipara about 30 years of age was treated for vaginitis, and, to determine the condition of the uterine mucosa, a probe was passed. Before leaving the office hemorrhage began, for which the vagina was tamponed. Arrived at home, hemorrhage continued and the physician was summoned, who repacked the vagina. Oozing persisted, and in the course of two days several tampons were inserted without avail; the patient grew worse and worse. Toward evening of the third day, the patient having rallied a little from an almost moribund condition in the morning, the uterus was curetted and packed with iodoform gauze soaked in gelatin. The writer noted and remarked the character of the blood. It was watery, lake-colored, like port wine, and that which had accumulated in the vagina had two small black clots floating in it. The hemorrhage completely ceased after this treatment, and the patient recovered, though on the third day there was some fever. This patient had been treated by Dr. Billings for malaria for several months.

The third case is one that I wish to report in detail.

Mrs. H., 35 years of age, IVpara, German. She had not menstruated regularly till after marriage, when there was occasionally some pain, and the menses were profuse, lasting seven to ten days. She has a history of hemophilia; pains in joints, which were called rheumatic; prolonged hemorrhage when she pricked her finger or from any slight injury. Has been subject to diarrhea for years. Her first labor, twelve years ago, was arduous, long, but finally spontaneous; stillbirth, baby large. Since then the patient has had an endometritis and two abortions. In one of these I attended her, just four years ago, performing digital curettage. There was no particular hemorrhage at this time. For the cure of the endometritis Dr. Dudley curetted her, but there followed no relief. Recently Dr. Watkins treated her by tonics and relieved her general and local symptoms. She became pregnant.

On August 6 I examined her. She was in the seventh month of gestation. There was nothing abnormal, save that the uterus was soft and flaccid. No heart tones, but the patient felt fetal movements. She was rather anemic and complained of being very tired on the least exertion. The urine was normal, save that there were many streptococcus chains in the centrifuged specimen.

She was feeling as usual on August 12. At 2 A.M. of the 13th she awoke with a pain in the abdomen. Her bowels

moved and the pain grew worse, extending to the back. She sent for me about 7 and I arrived at 8:20. The patient was in bed on her back; she complained of pain in the abdomen and back, continuous, with very slight exacerbations. During the evening the fetal motions had been notably active, but since 2 A.M. the child had been quiet.

The pulse was full and bounding, but the patient was pale, especially the lips and gums. Abdominal examination showed the uterus, which had been so soft, now very hard, large, symmetrical, and tender. No heart tones.

Diagnosed premature detachment of the placenta and sent for aid and counsel. There had been no external hemorrhage, but while at the telephone the husband summoned me—patient had begun to bleed. The flow soon became profuse. With the help of the husband alone I put her on the table and prepared the parts. The cervix was not effaced, was rigid and tough; the os admitted one finger, high up and hard to reach; vagina small, perineum inelastic; L. O. A., head high, membranes intact, profuse hemorrhage. Instant delivery was indicated, but I found it impossible to dilate the cervix with the fingers—first, because it was so tough; second, it was so high up; third, the vagina was so tight that the hand could not be inserted. I tried it again under chloroform with no better result. The bowels kept moving during these manipulations, incommoding them very much.

I put in a colpeurynter, then drew on it, after rupturing the membranes; little uterine action, not enough for the emergency. Drew the colpeurynter powerfully through, and thus brought the cervix down to within reach of the fingers, and by this means aided the dilatation. Dr. Stowe gave chloroform for part of the time only—her condition forbade its continuous administration. After one and one-half hours' work the cervix allowed the colpeurynter through, being the size of a dollar and softer. There was little hemorrhage during this time, and what came was thin, dark blood and old.

A dark sugillation began on the right side of the vagina, making me think of a hematoma; but it was a bloody infiltration, not an effusion. The nurse gave a hypodermatic of strychnine and a large, bloody infiltration of the skin and subcutaneous tissue took place around it.

Gave two drachms of ergot by mouth, and salt solution, one quart, was injected under the left breast. Deep blue ecchymoses appeared around the puncture and extended up into the

axilla, blood oozing persistently from the hole and not to be stopped with plaster. The patient now was deathly pale, but had a slow pulse, 86 to 96, of small volume. Delivery being urgent, craniotomy was done; but the cranioclast would not hold on the small, soft head, wherefore the fingers made traction on it, which served to dilate the cervix a little. I tried to do a version, but the hands, tired with two hours' hard operating, were paralyzed. Dr. Watkins got a foot down for me and I completed the extraction easily. Dark, thin, almost lake-colored blood followed: I cleaned out the uterus. Placenta was loose in the cavity, which was filled with old, dark, firm, almost black clots. After the uterus was empty there was no oozing for a minute, when it recommenced. A hot lysol douche had little effect, so the utero-vaginal tract was tightly packed with lysol gauze. Hemorrhage ceased. There was no atony here; uterus contracted down on the gauze.

Patient had premonitions of death, no pulse, was restless, dyspneic, and evidently sinking. Oozing began through the tampon, thin, dark, lake-colored as before, but before we could retampon with gelatin gauze she became unconscious and died. It was three hours from the time I started and ten hours from the onset of first symptoms.

The placenta showed several apoplexies in its substance and adherent clots on the surface: thickened serotina, otherwise macroscopically normal.

This patient had some blood dyscrasia—witness the bloody infiltration of the vagina, the hemorrhages around the hypodermatic puncture, and the persistent oozing from the salt-solution wound. The embalmer said he remarked the watery, dark condition of the blood, saying that it looked as if it had iron in it. The appearance during life was the same. Dr. W. E. Morgan was similarly struck by the altered appearance of the blood.

I am sorry that I could not make this case the basis of accurate pathological study. Those who have acted in such tragic scenes occurring in a private home can readily understand the impossibility of such study. A consideration of the features of the case will, I hope, prove interesting.

1. Was she a bleeder? In her own history there are symptoms to indicate it, but the hemophilia was somewhat latent till this time. Müller¹ says that the disease may be latent, may

¹Krank, des weibl. Körpers, S. 410.

show itself after normal menses, even after normal labors, or at the menopause. In her family there is no history of hemophilia.

Is there such a disease as acquired hemophilia? A woman may be a bleeder and not have a family history of same.¹ The causes of this are unknown; consanguinity of marriage, tuberculosis, gout, maternal mental shock during gestation, have all been assigned.

Does syphilis cause hemophilia, or at least a tendency to bleed? Bälz² and others describe a syphilis hemorrhagica, with ecchymoses and bleeding from the mucous surfaces. In the first case alluded to, the patient was a prostitute with a syphilitic, macerated fetus. Van Buren and Keyes speak of epistaxis as one of the symptoms of secondary syphilis. Congenital syphilis can produce a fatal bleeding in the new-born. Hofmann³ speaks of a syphilitic pernicious anemia, and leukemia is said to be caused by it. The effect of syphilis on the blood, therefore, cannot be denied, and if it produces one dyscrasia it surely can another. Why, in the frequent abortions it produces, there is not more hemorrhage may be explained by the thrombosis that occurs after the fetus dies. We cannot use this kind of argument when we are seeking a cause for the rare case, the exception; then, too, no disease shows such variation in its manifestations in different individuals as does syphilis.

Does malaria cause hemophilia, or at least a tendency to bleed? Malaria is said to cause hematuria, melanemia can follow it, and leukemia has been laid at its door. Porter⁴ tells of a case where after amputation intermittent hemorrhages at the wound occurred.

That malaria might cause a temporary hemophilia is not unreasonable. In the second case referred to the patient had been under treatment for malaria and anemia for months.

Either of these diatheses might aggravate or pervert the changes of the blood incident to pregnancy.

The pathology of the blood is recently the object of closer study, but it has long been known that certain mineral and organic poisons may affect its constitution; *e.g.*, anilin, antifebrin, arsenic, carbolic acid, potassium chlorate, pyrogallie acid,

¹Eichhorst: Spec. Path. u. Therap., S. 72.

²Eichhorst, under Syphilis.

³Constitutions Krankh., S. 58.

⁴Eichhorst, loc. cit., 206.

and other chemicals have produced hemoglobinemia, hemoglobinuria, icterus.¹

Mushrooms² and snake poison have done the same. The snake poisons (rattler, common adder) cause bloody diarrheas, hemoptysis, epistaxis, hematuria.

Does the loss of blood favor further hemorrhage *per se*? It is generally believed that acute anemia increases the clotting power of the blood. At any rate, the blood that is lost in cases of extreme anemia is light and watery, not dark.

Roger³ says that autointoxication can produce bodies which are *plasmatic* poisons, diminishing or augmenting the coagulability of the blood, and *globular* poisons, affecting in various ways the blood corpuscles, dissolving them, hardening them, etc.

Clarke⁴ and others claim that intestinal fermentation can produce poisonous bodies that may cause anemia and chlorosis. Escherich believes that the bacterium coli commune can cause hemorrhagic diathesis in the new-born. This woman had chronic diarrhea for many years.

Albert⁵ claims that a latent microbial endometritis during pregnancy may cause many of the disturbances of this state—*e.g.*, hyperemesis, eclampsia, etc.—through the toxins produced. There are those that ascribe an internal secretory function to the endometrium. Could an alteration of this mucosa produce anomalous secretion and thus changes in the blood?

Runge⁶ says sepsis may cause multiple hemorrhages, internal and external, in the new-born. Did the many streptococcus chains in this patient's urine point to a sepsis? The influence of the bile acids and pigment on the blood is generally known, and the danger of operations in these cases of icterus appreciated.

I feel that I have brought forth enough reasons for believing that there is such an affection as a temporary hemophilia, but the demonstration of the same, I admit, presents no little difficulty. The probability of correctness of a theory that cannot be proved increases with the number of cases that it satisfac-

¹Hofmann, loc. cit., S. 185.

²Idem.

³Les Antointoxications. Traité de Path. Gén., Paris, tome i., p. 672; quoted by Bouffe de Saint-Blaise, Ann. de Gyn., November, 1898.

⁴Quoted by Van Noorden, Path. des Stoffwechsels.

⁵Arch. für Gyn., 1901, Bd. lxiii., S. 511.

⁶Krankh. der ersten Lebestagen, S. 198.

torily explains. There is good ground, therefore, for believing that further investigation will prove the assumption made.

2. Could any one of the three patients have had some form of blood disease—*e.g.*, pernicious anemia, leukemia, morbus maculosis Werlhofii—and this disease be the cause of the hemorrhage?

The question, as far as the first patient is concerned, cannot be answered. It must be answered in the negative for the second woman. For the third patient, the fatal case, it is possible. The extreme fatigue on slight exertion, existing throughout pregnancy, the fact that Dr. Watkins treated her for anemia, both point to it.

I am deeply conscious of the vagueness and uncertainty of all the explanations offered for the special cause of the hemorrhagic diathesis in each of the three cases referred to. In the absence of further study of such cases, and of literature on the subject, I am limited to the field of conjecture, but I hope that what has been brought out may direct investigation into the causes of these melancholy and formidable accidents.

There are other features of the last case no less interesting. The total amount of the blood lost—not over two pints—was not enough to kill this woman. The element of shock was not apparent. Did the vaginal extravasation extend far, or did she have other extravasations? No postmortem was obtained; the undertaker said that he got over a pint of blood from the heart, and that the needle punctures referred to kept bleeding after death. I could find no hematoma in the pelvis during life, and I examined carefully. There was no deep or perforating injury to the genital tract.

The extreme pallor, present before the anemia was apparent in the pulse, the slow pulse throughout, never above 100, are to be explained.

The Treatment.—The condition was recognized early, and the uterus was emptied as soon as it was possible, the loss of new blood being inconsiderable. There was some delay, thirty minutes, in getting help, but the event proved that nothing was lost. A Cesarean section would probably have been fatal from hemorrhage, the time element not being present to indicate it. The rigidity of the cervix was unfortunate, and the fact that it was not effaced forbade incisions. Had we made them the suture would not have stopped the bleeding. The uterus was not atonic, the packing was firm enough for an ordinary case;

the blood simply leaked from the surfaces. Packing with gelatin gauze might have stopped the hemorrhage from the genital tract, but I feel sure the issue would have been the same. The salt solution did not seem to have much effect.

What to do in a similar case? If the condition of the blood is recognized during pregnancy, a cause ought to be sought and removed, if possible. If none is determinable, the newer remedies, gelatin and calcium chloride, may be tried. If the hemorrhage occurs during labor and the condition of the blood be understood, the same treatment, and tamponing the genital tract with gelatinized gauze at the completion of labor at once and firmly.

The second patient referred to is very desirous to have children and has asked me if she dare become pregnant. I am having some difficulty in deciding the question.

3632 PRAIRIE AVENUE.

A COMPARATIVE STUDY OF THE IMMEDIATE RECOVERY OF
PATIENTS FOLLOWING VAGINAL, TOTAL ABDOMINAL,
AND SUPRAVAGINAL HYSTERECTOMIES,
INVOLVING IN ALL ONE HUNDRED AND THIRTY CASES.¹

BY

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(With three charts.)

It has been frequently said that statistics are of little service in determining the value of any method of operating. There is much reason for such a widespread opinion, since too many factors enter into the make-up of such reports to render them of much service to the operator seeking the best methods. A small percentage of deaths simply shows either the skill of the operator or an unusual run of fortunate cases, or both.

The statement of so many recoveries does not give us an insight into the manner in which the patient recovered—whether it was even or stormy, whether smooth or one requiring some secondary operative interference.

Three years ago I was an ardent advocate of the vaginal route

¹ Read before the New York Obstetrical Society, October 8, 1901.

of operating, believing that the after-recovery of the patients was smoother, and knowing that there are but few intrapelvic growths that cannot be removed by this route. During this time and for two years previous this choice of route was adopted, whenever it was possible to do so, by Dr. Cleveland and myself in his service at the Woman's Hospital. The results were excellent and left apparently nothing to be desired. During the two years past, upon the same service, this method has been unconsciously and gradually, to a large extent, replaced by the abdominal route, the object being to exercise as much conservatism as it was possible to do.

There are many staunch advocates of both methods of operating, and their arguments supporting their views are familiar to all of us. It is not my object to bring together such arguments, but to compare the immediate recovery of patients following the performance of these classes of operations. With this end in view I have brought together, through the courtesy of the surgeons in charge, all of the hysterectomies performed during the last two years on two of the services in the Woman's Hospital. These have been arranged under the respective heads of vaginal hysterectomies; complete abdominal hysterectomies, the cervix being removed; and supravaginal hysterectomies, the cervix being left.

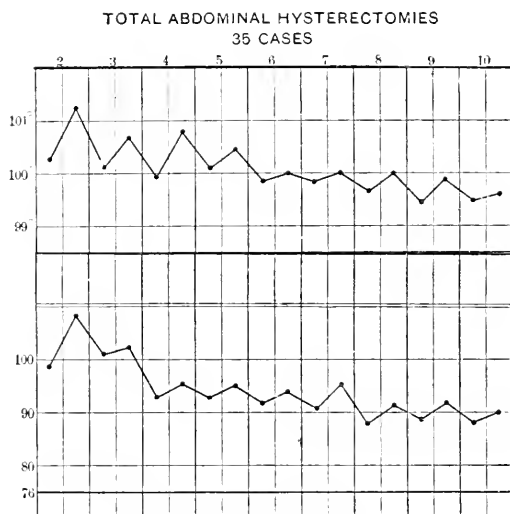
Vaginal Hysterectomies, 34 in number, have chiefly been done after the following method: Hemostasis of the uterine arteries has been obtained by the vasotribe or angiotribe. After the complete separation of the uterus and the diseased adnexa, the broad ligaments have been clamped off, one clamp on each side being used. Sterile gauze packing is loosely placed, well above the ends of the clamp and lightly filling in the intervening space and the vagina. The clamps are removed at the end of twenty-four hours. The gauze packing is all removed by the seventh day, its removal being commenced on the fifth unless there is some indication to the contrary, such as a rise of temperature, when its removal is commenced earlier.

Complete Hysterectomies, 35 in number. The method here pursued is that adopted by the majority of operators. The uterine arteries are ligated with catgut. The ovarian are obliterated, in the majority of cases, by the Skene electric clamp. When this is not used they are tied off with catgut. The pelvic peritoneum is not closed, the raw surfaces being simply covered with sterile gauze, a free end of which protrudes from the vagina. This gauze is not disturbed until the fifth day, unless some indi-

cations arise. As in vaginal hysterectomies, it is all removed by the seventh day.

Supravaginal Hysterectomies. The 54 operations brought together here have been done in the manner customary with the majority of operators. The ovarian and uterine arteries are secured on both sides with catgut. The anterior and posterior flaps are united with a running catgut Lembert suture, shutting off the stump of the cervix and leaving no raw surface exposed.

The intervening dead space between the flaps has either been drained for twenty-four hours by a small portion of gauze protruding through the cervical canal into the vagina, or no drainage is used, as the judgment of the operator may dictate.



The above descriptions of the technique used are given in order the better to compare intelligently the results derived from this comparative study.

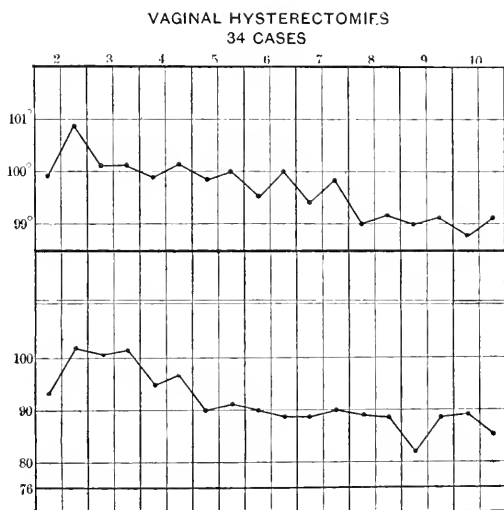
The temperature and pulse record of each patient has been taken from the books of the hospital. The period of ten days from the time of the operation has been considered ample to determine the exact course of recovery of the patient; within this time any secondary infection that might arise will usually declare itself.

From the tabulated records of each class of operation a composite chart has been made, both of the temperature and pulse.

No fatal terminations have been included in this comparison,

since my desire is to determine if there is any difference in the smoothness of the *recovery*, as evidenced by the temperature and pulse record. For the information of any one desiring to know the death rate I give the following: Thirty-six vaginal hysterectomies, 2 deaths—1 insanity, 1 sepsis; 36 complete hysterectomies (abdominal), 1 death—sepsis; 59 supravaginal hysterectomies, 5 deaths—4 sepsis, 1 pneumonia. These fatal results will be referred to in detail later on.

A careful study of these composite charts as shown you reveals a remarkable similarity in the curve of recovery of both the temperature and pulse in each class of operation. There is seen to be a slight difference in favor of the vaginal route; this oper-



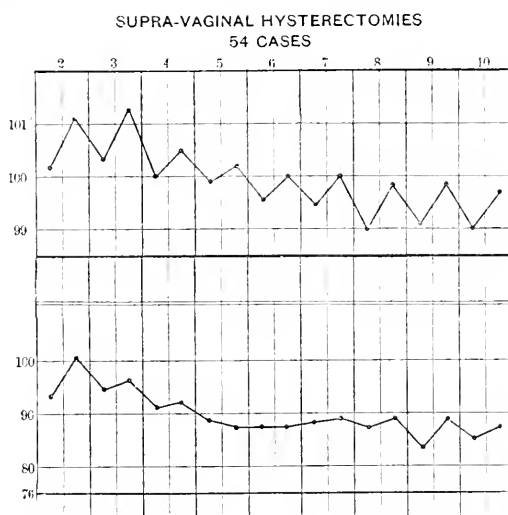
ation is, however, practically the same from a surgical standpoint as the complete abdominal hysterectomies with the absence of the abdominal incision and sutures. I therefore attribute this slight difference to the presence of the sutures in the abdominal wall, and not to any advantage derived from operating through the vagina.

From the composite temperature and pulse curve there is only one conclusion to be drawn: that from this standpoint it is a matter of choice and individual preference with the surgeon, the patient making as even a thermal recovery after one method of operating as from that following another.

To further study the recovery after these operations, let us

compare first the vaginal and complete abdominal hysterectomies as belonging to one class that may be called the open method, *i.e.*, drainage through into the vagina. Both have gauze drainage—which must be removed; one has in addition the abdominal wound—which is to the patient the most prominent feature of the operation. This wound, with its pain and frequent dressings, impairs the morale of the patient.

Coming intimately in contact with the patients after these two classes of operations, the difference in their mental equilibrium impresses me strongly. After the gauze drainage is removed in both, the patient following the vaginal hysterectomy is thoroughly at ease, mentally and physically. The one fol-



lowing the abdominal hysterectomy has the wound in the abdomen uppermost in her mind and is anxious for some time.

Of these two methods of operating, that by the vagina I regard as the more difficult, and to obtain the same result as by the abdomen requires a larger and wider experience in operating. I refer, of course, to complicated cases of adherent diseased adnexa and not to the simple removals of cancerous uteri.

The abdominal route, with the assistance of a full view of the field of operation by the Trendelenburg position, and a complete isolation and cutting off of the intestines by gauze pads, is in my estimation much the safer method. Here adhesions are severed under the eye and injuries to attached intestines can be more intelligently avoided.

As stated in the general summary of the technique employed, in performing these two classes of operations it is not our custom to close the pelvic peritoneum in either. The raw surfaces are covered loosely by sterile gauze packing, a free end of which extends into the vagina.

It has never been our experience that the adhesions between the plastic roof formed over the gauze and the intestines has given rise to any trouble, nor am I aware of any reported by others.

Supravaginal Hysterectomies. The above open methods, involving, as they do, a necessary contracting granulating cavity and the attendant foul discharge, while safe, are still at variance with the refinement of surgery, where primary union is sought and the avoidance of open suppurating wounds is expected.

The recovery of patients from this class of operation is surgical in every respect; there is no suppurating cavity to close by contraction and granulation. The method has the additional advantage of leaving the cervix, said to be the seat of sexual feeling in women.

The vault of the vagina is also kept intact and its elasticity maintained. I do not regard, however, that the operation is materially shortened by leaving the cervix, for in total hysterectomy the extra time consumed in removing the cervix is largely compensated for by the rapidity with which the drain of sterile gauze covering the denuded surface is introduced, this covering consuming much less time than the closing of the peritoneal flaps over the cervical stump.

A study of the composite temperature and pulse curves of the 54 cases of supravaginal hysterectomy here reported shows a remarkable similarity in the recovery of patients from this class of operation as compared with the composite charts of those recovering from total abdominal and vaginal hysterectomies. In other words, while the method is more surgical, there is, however, no advantage gained in the case of recovery, as far as the temperature and pulse curve would indicate.

Late ligature infection and the danger of septic absorption through the larger area of connective tissue exposed has been frequently urged against vaginal and total abdominal hysterectomies. This is not in accord with our experience at the Woman's Hospital. In these operations, where it is safe to do so, ligatures are replaced by the vasotribe, Skene's electric clamp,

or the ordinary clamp. When ligatures are used catgut of No. 2 size is employed.

That there must be some absorption is evident; it is, however, not my experience that it has any appreciable effect upon the temperature or pulse of the patient. A close study of the individual charts in both of these classes of operations bears out this statement. The open vault of the vagina precludes any retention of the secretions above.

The true advantage of the supravaginal method is in the absence of any drain with its attendant painful removal, the absence of the resulting suppurating closing cavity, and the time gained in the discharge of the patient from surgical care.

The leaving of the cervix, while of distinct advantage, is, however, accompanied by some risk to the patient, since if secondary infection does occur through its canal the effusion under the flaps, now made septic, cannot be reached except by a secondary operation.

The dead space necessarily existing between the peritoneal flaps and the cervical stump has always been to me a source of concern. That the effusion in this space is generally taken care of by the patient is known to all of us, and is shown by the even temperature curve of the 54 cases here reported. That this satisfactory outcome is, however, always true is not in accord with my personal experience, nor is it that of some others. To avoid this secondary infection the habit of closing the cervical stump is customary, though this procedure is not universally adopted. The method of draining into the vagina by a small gauze wick protruding through the canal of the cervical stump, and which is removed at the end of twelve to twenty-four hours, I think is questionable, since it furnishes a channel for infection of the subperitoneal space. For the same reason do I regard the leaving of the stump open as cut across, liable to permit a secondary infection of the space above.

The vagina, even if sterile at the time of the operation, cannot remain so with the bloody serum escaping over the vulva. The wonder is, when we recall Cohn's classical statement that "one germ under proper conditions may give rise to more than half a million of similar organisms within twenty-four hours," that with the draining of the cervical stump into the vagina secondary infection under the peritoneal flaps is not the necessary sequence instead of being only the occasional occurrence. When such an infection does occur, it is fortunately, in most

instances, of a mild type and the confined pus is liberated by gentle stretching of the cervical stump. In others the infection terminates fatally.

Taking up in detail the fatal cases, I refer to the statement made in the beginning of this paper, that in 36 vaginal hysterectomies there were 2 deaths—1 mania, 1 sepsis; in 36 complete abdominal hysterectomies there was 1 death—sepsis; in 59 supravaginal hysterectomies there were 5 deaths—1 pneumonia, 4 sepsis.

Vaginal Hysterectomy.—Miss A., aged 47, single, admitted to the hospital January 12, 1899, with the diagnosis of small multiple fibroids. Her condition when admitted was that of intense marked bloodlessness with poor, feeble pulse. She entered with the history of having been regular in her menstruation, though profuse, until December previous; since December she had been flowing almost constantly. At the time of entering the hospital the loss of blood was so profuse as to necessitate packing the uterus and vagina. This controlled in only a small degree the profuse flow.

On February 6 live steam was passed into the uterus through a protected canula, the steam being allowed to enter the uterine cavity for one-half minute. This checked the flow, yet her general condition did not improve to any material extent.

February 14 vaginal hysterectomy, hemostasis of the uterine and ovarian arteries of both sides being accomplished by the angiotribe.

The patient died on the sixth day of exhaustion from sepsis.

Mrs. M., aged 44, married. *Diagnosis:* Small multiple fibroids of the uterus with an intrapelvic ovarian cyst of the right side. Also a diseased cervix suggestive of malignancy, associated with an exudative thickening of the posterior wall of the vagina for an inch below the cervix. A section of the cervix was removed for a pathological examination. A report of its not being carcinoma was returned.

Operation April 10, 1899. About one-third of the posterior wall of the vagina was dissected from the rectum. The vaso-tribe was used on both uterine arteries; the hemostasis not being complete, ligatures were used on each.

The fibroid uterus was removed by morcellation and hemo-section, both broad ligaments being clamped and severed. The cyst of the right side was drawn down, punctured, and removed. An enlarged subperitoneal gland of the size of a walnut was also

removed. Iodoform gauze packing was used and patient put to bed in good condition.

The patient did well from a surgical standpoint; the bowels moved on the third day, and there was no disturbance. On the fourth day she showed signs of acute mania, which became of such a violent character as to necessitate her removal to Bellevue upon the day following. At the time of her removal the temperature was 101.4° and pulse 108. She died at Bellevue some weeks later, never having regained her sanity.

Whether the iodoform gauze used could have been a factor in the production of the mania I am not able to state. Soon after this occurrence I ceased to use iodoform gauze in any way, and have no reason to regret having abandoned its use.

Complete Hysterectomies.—Mrs. G., aged 41, married. *Diagnosis:* Fibromyoma with pyosalpinx. Has been under treatment for a period of twelve years in the outdoor department, refusing operative interference; during this period has had frequent attacks of localized peritonitis, and at one time an acute gonorrhea.

Operation October 13, 1898. Difficult on account of dense adhesions. Large pyosalpinx on right ruptured in removal. Abscess sac and adjacent parts twice flushed with peroxide of hydrogen followed by salt solution. Hemostasis of ovarian arteries by Skene's electric clamp. Uterine arteries clamped through the vagina after the separation of the uterus from the vaginal attachments anteriorly and posteriorly. Intervening space filled loosely with gauze, drain extending into vagina. Patient did badly from the first and died on the third day from septic peritonitis.

Supravaginal Hysterectomies.—Miss D., aged 41, single. *Diagnosis:* Fibromyoma of uterus. Entered the hospital December 20, 1899, on account of profuse floodings of from three to five weeks' duration. Some pain over both sides. Operation February 26, 1900; uncomplicated; gloves used; remains of cervix dilated, cauterized, and a small wick of iodoform gauze passed through the canal, projecting slightly above the amputated portion. Posterior and anterior peritoneal flaps united with running sutures. Patient put to bed in excellent condition; gauze drain removed at the expiration of twenty-four hours. The patient, while not giving any evidence of serious trouble from the standpoint of temperature and pulse, was yet distended and complained of a good deal of pain and nausea. On

the evening of the fifth day her rectal temperature was 100.6° with pulse of 100. The morning temperature of the day following was 98.6° , with pulse of 100. During the day the patient complained of increasing pain; the temperature rapidly rose, as did also the pulse. She died during the night of the sixth day. Her death was evidently due to septic peritonitis, probably caused by the rupture of a pus pocket into the general cavity. The surmise as to the cause of death was made evident from the marked distension, cold extremities, and rapidly failing pulse, yet could not be verified by autopsy, which was not granted.

Mrs. K., admitted to the hospital February 19, 1900. *Diagnosis:* Fibromyoma of uterus. Operation February 21, uncomplicated; gloves used; and gauze drain through the canal of the cervical stump of the subperitoneal space, between the united anterior and posterior peritoneal flaps. Drain removed at the end of twenty-four hours. Patient died on the fourth day, the condition for the first three days being much like that of the previous patient, the rectal temperature the day before death being 99.2° with pulse of 126. The cause of death was evidently sepsis.

Mrs. R., aged 37, widow, admitted to hospital November 10, 1899. *Diagnosis:* Pyosalpinx with adherent retroversion. Operation December 5, 1899, uncomplicated; gloves used; subperitoneal space drained through canal of cervical stump. Patient died of sepsis on the sixth day.

Mrs. Le P., aged 43, widow, admitted to the hospital August 20, 1900. *Diagnosis:* Fibromyoma with pyosalpinx. Seeks relief on account of the presence of the tumor and on account of pain, which is intense and constant. Operation August 22, 1900; gloves used. Large pyosalpinx of the right side removed without rupture; the fibromyoma removed, leaving the vaginal portion of the cervix. Subperitoneal space under the united peritoneal flaps drained by a gauze wick through the cervical canal. This drain was removed at the end of twenty-four hours. Being notified while out of town that the patient was not doing well, I returned to the hospital on the night of the 26th. When seen the patient was so much exhausted that nothing short of a miracle could save her. I, however, incised the cervix and liberated a quantity of pus. The peritoneal vault formed by the two united flaps was recognized by the finger as firm and intact. The abscess existed in the subperitoneal space. The relief came too

late, the patient succumbing a few hours later. The postmortem examination showed that no peritonitis existed, and that death resulted from the confined pus liberated too late.

Mrs. H., aged 32, married, admitted to the hospital January 5, 1901, the pathological condition present being broad-ligament cyst of both sides. She sought relief on account of constant pains on both sides, which were worse on standing. Operation January 21, 1901. On account of the depth in the pelvis to which both cysts extended, it was necessary to remove the uterus, giving a larger working field. This was done, leaving a narrow cervical ring at the junction of the vagina. The removal of the cyst walls exposed both ureters. To stop an obstinate oozing, gauze was packed over the exposed raw surfaces, the ends of which were brought out of the cervical ring, which in this instance was easily stretched, sufficient to admit with ease the index finger. The patient died on the seventh day of pneumonia. The gauze packing had been removed some days before death.

In gathering together the above data to place them before you, there are certain conclusions that force themselves upon me.

It will be noted that the percentage of mortality in the 36 cases of vaginal hysterectomy reported is $51\frac{1}{2}$, that of the 36 cases of complete hysterectomy is $2\frac{3}{4}$, while that of the 59 cases of supravaginal hysterectomy is $8\frac{1}{2}$. When it is recalled that the temperature and pulse record, as shown here, of all cases recovering is practically the same in one class of operation as in the others; when it is further borne in mind that the vaginal and the complete hysterectomies were, with few exceptions, done on patients with purulent adnexa associated with dense adhesions, and in whom the possibilities of infection from the conditions present are greatest, the difference in the mortality becomes more striking than the percentage death rate shows.

This deduction from the data presented is in direct opposition to that of Dr. Noble, who, in his finished article of four years ago on hysterectomy for fibroma, gives from a collection of 345 cases of supravaginal amputations by five American operators a death rate of 4.9 per cent. He also quotes Olshausen's table of 806 supravaginal amputations with a death rate of 5.6 per cent, as opposed to 520 total hysterectomies with a death rate of 9.6 per cent. It is not my intention to compare the small number of cases here reported with the different results of the large collection made by Dr. Noble. If the technique of the various

operators could be known, no doubt some reason for this difference could be readily seen.

The question of draining the subperitoneal space of supravaginal hysterectomies through a dilated cervix is one in which operators are not yet in thorough accord. The usual method of those who advocate drainage of this space is to insert through the dilated or longitudinally divided cervical stump a gauze wick, which is removed in twenty-four to forty-eight hours after the operation. That this drainage through the cervix is bad practice I feel personally convinced.

All of the five deaths from supravaginal hysterectomy reported here were, with the possible one exception, caused by sepsis. Three of these cases could not have become septic from the pathological conditions present. Of the two remaining, one had, in addition to the fibromyoma, a pyosalpinx which was removed unruptured, the other had a retroverted uterus with pyosalpinx. Here again there was no rupture in removal. Even if ruptured, there was every evidence from the history that the pus was sterile.

In all of these fatal cases the subperitoneal space was drained by the gauze wick through the cervix. There is no other conclusion but that through this drainage channel the infection travelled. This is in keeping with the literature on this subject, chiefly that emanating from Johns Hopkins Hospital. Fortunately, in the large majority of instances in which drainage was carried out no infection has occurred. In a few, three cases from our service, the infection was mild, showing itself in a rise of temperature and pulse. A slight stretching of the cervix has liberated the infected secretions, and was followed by a prompt recovery.

In other cases where no drain has been used, and in which the cervical stump has not been closed, but is left as cut across, there has also been an occasional infection of the subperitoneal space under the united peritoneal flaps, necessitating some secondary procedure, as stretching the cervix, to relieve the condition.

If this stretching of the cervix were all that is necessary to insure in every instance a prompt recovery from a subperitoneal infection, it would be of small consequence. Such an infection has, however, in at least four instances out of the 59 cases reported, terminated fatally.

Miller, in his bacteriological study of the cultures made from

the interior of the uterus and of the pus from diseased ovaries and tubes, reports in the *Johns Hopkins Bulletin* the following results: In 44 cases of hysterectomy, mostly for pelvic inflammatory disease, the cultures from the interior of the uterus were *all* negative. In 51 cases of pyosalpinx, ovarian and pelvic abscesses, the cultures were negative in all but one. In this the gonococci were found.

For six months past, in all cases of supravaginal hysterectomy, it has been the custom in our service to close the cervical stump with catgut sutures before uniting over it the anterior and posterior flaps of the peritoneum. Up to the present writing there has been no secondary infection. From the reports of others who adopt this course occasional mention of such infection is noted, while some other operators claim never to have had such, even in a large number of cases.

A review of the various facts brought out in this study leads me to the conclusion that:

1. While the finished result of a supravaginal hysterectomy is most satisfactory, the operation is, however, marred by the possibility of a secondary infection, at times terminating fatally. When this infection does occur it can be reached only by some secondary operation.

2. The chance of this infection occurring is greatest when the subperitoneal space is drained through the canal of the cervical stump, or when the canal is left open. There is every reason to close the stump, as offering the best results.

3. Total abdominal hysterectomy, though not such a finished operation as the supravaginal, is, however, one in which there is less likelihood of any secondary complications, and, though objectionable on account of the suppurating cavity to be closed by contraction and granulation, yet offers to the patient a surer means of an uninterrupted recovery. This conclusion, while at variance with Olshausen's large collections of cases, in which he gives a 5.6 per cent death rate for supravaginal and a 9.6 per cent rate for fatal hysterectomies, is, however, the only one to be drawn from this collection of consecutive cases brought together here.

THE TREATMENT OF INTRAPERITONEAL INFLAMMATION
AND SUPPURATION IN THE PELVIS AND VICINITY
BY THE POST-CERVICAL INCISION, ETC.

ILLUSTRATIVE CASES.¹

BY

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THE writer wishes to discuss, in the main, those rapidly acute cases of pelvic inflammation, more or less diffuse in character, due to abortion or septic infection. Here we have a class of cases wherein the physician has a tendency to delay operative surgery on account of legal characteristics and publicity; many such patients being allowed to die, the physician avoiding surgical treatment in order to keep himself clear of the law and public comments. The writer would insist that all such cases must not be treated by expectant means, but should receive early and thorough surgery. Expectant measures are to be used only until the diagnosis is established; and once we feel assured that pelvic inflammation exists, it is our duty to operate at once, no matter what the stage of the disease. Of course, Nature may encapsulate the inflamed mass, and later, after breaking-down has taken place, the morbid material may be discharged; but to wait is grave, as it is purely guesswork what is going to take place, the course and termination depending upon the species and the virulence of the infecting organism and the resisting powers of the patient to disease advancement. Thus, gonorrheal inflammation, when infecting the pelvis, usually attacks the tubes, producing pelvic peritonitis, salpingitis, etc. Yet, limited to the pelvis, such inflammations are liable at any time to break forth into a rapidly spreading diffuse peritonitis, or, short of this, may become chronic and, lasting for years, be characterized by exacerbations which ultimately require very serious surgical treatment to save life, and still may leave the patient an invalid. In streptococcus or staphylococcus infections delay is more dangerous, the disease spreads rapidly, and the patient soon shows diffused peritonitis. While a large number of these cases die

¹Read before the San Francisco County Medical Society, July 9, 1901.

when treated medically, yet some survive, but most are invalidated by pus accumulations and sepsis or by extensive peritoneal adhesions which in themselves also require surgery for a cure. Thus the conditions are always serious and the patient's life is always in danger until the disease is cured by operation. The great advance made in the treatment of pelvic inflammations is due to our knowledge that they are produced by exactly the same agents as cause inflammations elsewhere. Before attempting to proceed with any method of treatment, it is essential to determine that the case is one of pelvic inflammation. Thus the disease must be differentiated from appendicitis, cystitis, ureteritis, suppurative ovarian cyst, diffuse peritonitis, large suppurative kidney, large suppurative or inflamed gall bladder, and adherent kidney in the pelvis. The writer will not run over the differential diagnosis of these several diseases, as it is not within the scope of his paper. He may state, however, that a physician, by careful examination of the history, by studying the general and local symptoms, by determining the local and general characters of the lesions, and, if still in doubt, by making an examination under anesthesia, can be fairly sure of the conditions present. On being called to a case of supposed pelvic inflammation, all opiates should be withdrawn, as they render the diagnosis more difficult; and no matter what the state of the diseased, immediate operation should be performed as soon as the diagnosis is made, as it is the safest and best method of treatment. After thorough vulvar, vaginal, and abdominal preparation and cleaning with aseptic and antiseptic solutions, the uterus is dilated, curetted, and irrigated, and then an incision with a tenotomy knife is made behind but close to the cervix; and by keeping close to the posterior surface of the uterus the peritoneum is opened, usually bluntly with the index finger. When the adherent inflammatory mass is reached it is thus punctured, evacuated, explored, and other masses, when detected, also opened through a common cavity. In the majority of these cases an abscess cavity is found. Thus all foci of inflammation are sought out and opened; all pus, shreddy material, etc., washed away with hot permanganate of potash solution; the cavities dried, dusted with aristol, and packed lightly with borated gauze strips. Following this with frequent vaginal douches and an occasional surgical dressing, the pains, fever, etc., disappear and the patients, in the immense majority of instances, make good recoveries. This treatment has also proved to be of value in the

presuppurative stages of intraperitoneal pelvic inflammation. By performing these simple operations early and thoroughly, lives have been saved and very extensive and mutilating operations avoided. The euretting, etc., of the uterus and the cul-de-sac incision, etc., remove the diseased endometrium, etc., drain away the inflammatory materials in the pelvis, large quantities of purulent material finding exit from the cul-de-sac in such cases. Dr. F. Henrotin has written a very instructive paper on the subject of the vaginal incision and drainage in acute cases of pelvic inflammation, and published the same in the Transactions of the American Gynecological Society, 1895, vol. xxii., telling his experience in twenty-seven cases of acute posterior pelvic inflammation. If during the operation it is noted that the peritonitis is wide-spread, the surgeon should not limit his operation to the cul-de-sac incision, but must proceed at once to make suprapubic median abdominal intraperitoneal incision, no matter what the condition of the patient, as in these extremes success depends upon immediate thorough operation; thus the abdominal cavity should be opened, infected intestines withdrawn, free and thorough irrigation with hot water or hot saline solution used on infected intestines and infected peritoneal cavity, all pus and other septic material removed by free and thorough irrigation and sponging, and all irreparably diseased structures removed. This, in all likelihood, means excision of the uterus, tubes, and ovaries. After such operations the intestines are returned and drainage used with moist absorbent gauze strips, which carry away fluids, etc., which form and accumulate for some days after the operation. These extensive operations the writer has employed several times with good recoveries. The cul-de-sac operation is not a dangerous one and the risks of injury to important structures are very slight. The early vaginal incision is thus advocated in localized septic pelvic inflammation, and the earlier the operation is performed the safer for the patient. Nineteen out of twenty cases of ovarian abscess resulting from trauma or abortion are cured by early operation. The late vaginal incision, though not always so certainly curative, is equally important. Old pus tubes adherent in the posterior cul-de-sac, ovarian abscess, pus collections, etc., when within reach from the vagina, can be entirely cured with incision, free opening, irrigations, and drainage. Occasionally more radical operations become necessary, but a large number of these cases remain permanently cured. The writer has em-

ployed the cul-de-sac incision since 1895, and has used it either as a diagnostic, curative, or a partial operative procedure in every diseased condition in which such an incision is indicated. The writer reports the histories of several cases taken from his series of operations. Any more to explain the points are unnecessary, as he considers the complete histories of several such cases are about as instructive as a million, as the technique is about the same in all cases. So far the cul-de-sac operations in the hands of the writer have been without mortality.

CASE I.—A. B., married patient under the care of Dr. A. B. McGill, of San Francisco, to whom I am indebted for the history. The patient was pregnant, and on April 13, 1900, some vaginouterine operation was performed by a female abortionist. On April 14 the operation was repeated. This was followed by cramps, bleeding, etc., for about five days, when fever set in. Dr. McGill was called in April 23, 1900. Temperature was 103.5°, pulse rapid and thready. She complained of abdominal and pelvic pains. Respirations were rapid and abdomen tympanitic.

On April 25, considering that pus was present in the pelvis. Dr. McGill inserted a trochar behind the cervix into the cul-de-sac; about two ounces of pus were evacuated and the trochar withdrawn. Temperature dropped to 101.5°, but on April 28 temperature was 105.7°. I saw the patient at 3 A.M. on April 29 with Dr. McGill and performed operation at her home as soon as preparation could be made. At the time of the operation there was great tympanites, rapid weak pulse, and a large, painful, tender mass was noted extending above the umbilicus and down into the cul-de-sac. Ether was administered, the uterus curetted and irrigated with H_2O_2 and 1:2000 bichloride solutions, cul-de-sac incision made, fluids, masses, shreds, etc., evacuated. Three large pus cavities were opened. One abscess was in the posterior wall of the uterus, extending almost through to the mucous membrane of the uterus; the other two were in the ovarian regions, the largest being on the left side. These cavities appeared walled off, were thoroughly irrigated with the above solutions, sponged dry, and lightly packed with borated gauze strips; the vagina was also lightly packed, the urine drawn off, and patient put to bed. After the operation the temperature dropped to 101°, later to 100.4°, and by May 16 the temperature was about 99°. Dr. McGill dressed the patient usually twice a day until May 16, when he discharged her in

good health. At the early dressings a considerable quantity of purulent fluids, shreds, etc., escaped. She was out of danger the third day after the operation. Her present general health is good; menstruation is regular, no pain, whereas before the operation she had considerable pain each time. Examination shows no tenderness of the pelvis or abdomen, yet some slight thickening can be detected on the left side of the pelvis by careful examination.

CASE II.—C. D., married; pregnant two months and three days. On June 15, 1900, she inserted a rubber catheter No. 14 into the cervical canal. She had some difficulty in introducing it, but, after working for some time, managed to insert it far enough to stay. Several hours later she began to flow. The following day she was taken with labor-like pains and hemorrhages, severe pains around the heart, and high fever. She flowed quite freely from the 12th to the 19th, and during this time also suffered from severe pains in the superior right quadrant of the abdomen and right lumbar region. These pains interfered with her breathing. She remained in this condition until the 20th, when the flow stopped. Her temperature on the 20th was 103°. Dr. George Gross, of San Francisco, was called, and on making an examination came to the conclusion that all materials within the uterus had not been expelled. On June 21 Dr. Gross curetted and irrigated the uterus, cleaning out a considerable amount of decomposed materials. After being put to bed she was seized with severe pelvo-abdominal pains and was given hypodermatically an anodyne. Subsequently she had severe diarrhea which lasted three weeks, and a troublesome cough developed which prevented her from getting sufficient sleep. About three days after the curetting a mass was detected behind the uterus and the abdomen was swollen considerably. She suffered intensely, the pain varying in character, colicky, labor-like, or throbbing felon-like. She coughed continually, and the sputum was examined, but no bacillus tuberculosis was detected. In the evening of July 11 I saw the patient in consultation with Dr. Gross, and operation was performed the following morning at her home. Ether was administered and uterus again dilated, curetted, and freely irrigated, removing many shreds, etc., and an incision made into the cul-de-sac as in Case 1. I opened several abscess cavities, irrigated, sponged, and lightly packed with iodoform gauze strips. The after-treatment was carried on by Dr. Gross. The patient re-

ceived alcohol baths every three hours, and internal antipyretics were given when temperature was 103° or over. Temperature after the operation continued high, running from 101° in the morning to 103° and 104° in the afternoon. Examination of urine showed considerable albumin, pus, and casts, so suitable remedies, diet, etc., were ordered for the nephritis. After four days the iodoform-gauze drainage was dispensed with as being inefficient and a glass tube with a rubber catheter attached was inserted in the cul-de-sac. The catheter extended to the vulva and only a small quantity of iodoform gauze was packed around the tube. The cul-de-sac, etc., was washed out through the rubber tube every three hours with weak hot potassium permanganate solution. Thus the parts were thoroughly irrigated without much disturbing the patient. A fecal fistula formed and large quantities of fecal matter escaped by the vagina. The washings were continued through the tube every three hours and the gauze was changed every two days. The tube was employed nine days, after which it was not used, as the healing was rapid and discharge slight. From the time the tube was inserted drainage was thoroughly established and there was an immediate change for the better. Her temperature remained considerably above normal for a day or so, but later became almost normal. She improved rapidly, the fistula soon closed, and by July 20 she was allowed to sit up in a chair. Another peculiar phase of the case was that for three days after the cul-de-sac operation she complained of severe pains and tenderness in the right side of the abdomen in the kidney region; the pains extended from the loin around to the front of the abdomen. I saw her again at this time with Dr. Gross and we made an examination to see if there was any pus in this region. After careful physical examination of the patient and analysis of the urine, we decided that there was no pus present. Her present condition is good, urine normal, no abdominal or pelvic pain, menstruation regular and uterus in good position; but there is a moderate amount of thickening to be detected on the right side of the pelvis and behind the uterus, but it is neither painful nor tender.

CASE III.—E. F., married. Was seen by me on April 9, 1901. About two weeks previously some vagino-uterine operation was performed by a midwife. This was followed by pains and hemorrhages and the passing of shreds, masses, etc. After seven days the bleeding stopped and she began to have severe

abdominal pains, vomiting, tympanites, chills, high fever, and a considerable amount of foul, yellowish vaginal discharge. I saw her April 9, 1901, at 9 P.M. Pulse was 120, temperature $103\frac{1}{4}^{\circ}$. She complained of pelvo-abdominal pains, tympanites, abdominal tenderness, and pains in both flanks. Examination showed profuse yellow discharge, subinvolution and tenderness of uterus, and a painful, tender swelling in the cul-de-sac. On the following morning ether was administered and I performed operation at her home as in Case 1, except that the cul-de-sac was not irrigated, but simply dried with sponges and lightly packed with borated gauze strips. When the cul-de-sac was opened about half a pint of hot blood-stained fluid escaped. Several such collections were opened, fluids, shreds, etc., removed, cavities dried, dusted with aristol, and drained with gauze. The patient's temperature after the operation continued along between 100° and 103° until April 26. She was dressed once a day for the first few days, the gauze packing being removed, but no flushing of cul-de-sac was done. As the fever kept up, the dressings were done twice a day and the wound was thoroughly flushed with H_2O_2 and weak hot watery solution of potassium permanganate. Temperature ran as high as 104° , even with frequent alcohol baths, ice bags, and internal antipyretics. Seeing that gauze drainage and packing were not efficient, I ordered vaginal douches of hot potassium permanganate solution (1:1000) to be given every three or four hours, and used as a dressing only a single two-inch gauze strip, the end of which was inserted as high as the cavity extended, while the other end extended into the vagina. Under this treatment recovery took place rapidly. The single gauze strip was changed every second day and the cul-de-sac soon filled. The patient made a fine recovery. Her temperature became normal May 4. Her general health is good, she has no pain, and her menstruation is regular. Examination shows the uterus in good position, somewhat fixed, and some slight thickening can be detected behind the uterus, but it is not painful to the examination.

From a study of the cases above cited and other reported cases, and comparison of the methods used by various physicians and surgeons, I can only draw the following conclusions:

1. That intraperitoneal pelvic inflammation is strictly a surgical disease.
2. That such inflammation should be operated upon as soon

as the diagnosis is made, no matter what the state of the disease.

3. That in most cases the disease is best approached and cured through the posterior cervical cul-de-sac incision.

4. That all such inflammatory masses should be freely opened, the cavities thoroughly irrigated with hot antiseptic solutions, dried, and drained with loosely packed borated gauze strips.

5. That gauze drainage should be supplemented and aided by copious vaginal douches of 1:1000 hot watery solutions of potassium permanganate, given every three or four hours until discharge, fever, etc., are gotten under control.

6. That the cul-de-sac operation is extremely satisfactory in the treatment of intraperitoneal pelvic inflammation and most of its sequelæ; the possibility of infecting the general peritoneum is very much reduced by operating through the cul-de-sac, as all fluids in the pelvis can be easily and thoroughly evacuated along lines of gravitation.

7. That the vaginal incision, when performed early in the disease, cures nearly one hundred per cent of all cases; and while the later vaginal incision is not always so certainly cured, it is equally important.

8. That in all cases wherein diffuse peritonitis is present one is obliged to complete the operation at once with laparotomy, etc.; for this reason the patient, instruments, etc., should always be prepared beforehand, in readiness, if need be, for very extensive intraperitoneal operations.

9. That the vaginal operation for pus in the pelvic cavity is less difficult to perform than when done through an abdominal opening; and although the surgery is less complete, yet the dangers are less to the patient.

533 SUTTER STREET.

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EPISODES IN GYNECOLOGICAL PRACTICE AMONG THE INSANE.¹

 BY

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(With three illustrations.)

THAT rare old man of St. Alban—quoting offhand from Lucretius—remarks that “no pleasure is comparable to the standing upon the vantage ground of truth and to see the errors, and wanderings, and mists, and tempests in the vale below.”

Fifty years ago it was stated, on competent authority, that insane women, the inmates of asylums, were not subject to the local disorders ordinarily so common to the female sex. We have no data to prove that such assertions were not true, but, as I have elsewhere pointed out, the percentage of abdomino-pelvic disease among this class of patients at the present day being represented by the figures 81, it is fair to assume that the older observers were at least mistaken in their asseverations and that their knowledge of the subject was not founded upon the surest of all substructures—experience.

Repeated investigation has shown that the insane female is not only as capable of suffering from the diseases peculiar to her sex as is the mentally intact, but that, possibly, from the very nature of her mental condition, her mode of life and confinement within hospital limits, she is more predisposed to certain local affections than has hitherto been considered. However this may be, both alienist and gynecologist have at last united on the common ground of humanity in their attempts to ameliorate the condition of these unfortunate invalids, and without care or thought as to the possible curative effects upon the disordered mind. During the past twelve years of my asylum service a large number of insane women afflicted with pelvic and abdominal disorders have come under observation, and I have selected from my note books a few of the most interesting and unusual cases for discussion at this time. Something of the following is amus-

¹ Transactions American Medico-Psychological Association, 1901.

ing, something of more than passing interest, and a little will be found of scientific value in that it contributes to the sum total of knowledge of obscure and infrequent conditions.

OBSTETRICS IN ASYLUMS.

At the Eastern Michigan Asylum, where most of my work has been done, there is an occasional case of childbirth, the patient being usually homeless and friendless, or else the event occurs unexpectedly before the carrying out of other arrangements can be accomplished. It is a rule of this hospital to return *enceinte* patients to their friends in ample time before delivery, in order that they may be cared for at home during the parturient act and provision made for the offspring. Later they may be readmitted to the asylum. Those cases which, of necessity or otherwise, are delivered in the institution are utilized for class purposes, the female pupils of the Training School receiving bedside instruction in the art of delivery and the care of the patient during puerperal convalescence. Such instances add greatly to the interest and value of the lecture courses in midwifery and gynecological nursing, and attendants who have watched the progress of labor and the subsequent lying-in period are in a position to appreciate more fully the importance of the pelvic disorders resulting from childbirth, the repair of which they so frequently witness in the operating room. The knowledge thus acquired also tends to make the attendant more watchful of her patients and quicker to note and report complaints of pelvic distress and indications of local suffering.

The following incident, which occurred some years ago at this asylum—and which is possibly already familiar—is worthy of repetition:

CASE I.—A patient at full term of pregnancy went to the closet and absented herself for an unusual length of time from the hall. An attendant, investigating the cause of her delay, discovered a stream of water running under the closet door, and, pushing this open, saw the woman sitting on the stool with the water flowing down to the floor around her. On raising the patient to her feet it was found that she had given birth to her child while on the seat, and that the head of the latter had so completely plugged the hopper as to prevent the escape of the running water, which soon overflowed the bowl. This occurred in mid-winter (February) when the water was icy cold. The

child was immediately removed from its perilous position, and, although it showed no signs of life, persistent efforts at resuscitation were finally successful. The mother's convalescence was uninterrupted and her recovery perfect, while the child rounded out a healthy babyhood and was alive and well when last heard from, some years later.

UTERINE FIBROIDS.

Fibroid tumors of the uterus are not infrequently met with among the insane, although in my list of one hundred unselected cases the condition is noted as having been found but once. The following case is interesting if not edifying:

CASE II.—In 1879 N. P. was taking a bath, when another patient, having gained access to the room and seeing a mass protruding from the bather's vagina, immediately seized and tore it away. The patient bled profusely, and inspection showed that a fibroid polypus had been attached to the cervical region of the uterus by a long stalk, about an inch of the pedicle being left behind. This was ligated and the patient made a good recovery. As the polypus could not be found later, it is supposed that the amateur surgeon disposed of it by swallowing.

CASE III.—B., a woman weighing something over two hundred pounds, was brought to my attention in 1897 with the history of an offensive discharge. Examination revealed the presence of a fibroid polypus the size of a seckel pear protruding from the external uterine os. A few days later this was removed, and at the same time a sessile growth, somewhat larger than an English walnut, was enucleated from the posterior uterine wall near the os internum. The patient recovered from the operation and continued well until the spring of 1899, when she again began having the malodorous discharge. Another polypus was found distending, but not protruding from, the cervix. Palliative measures were resorted to, but for various reasons operation was not undertaken until ten months later. On account of the presence of other fibroid nodes in the uterine wall it was determined to remove the uterus by the vaginal route. It was found, however, that the polypus had so increased in size as to be firmly wedged in the vagina, it being impossible to pass even a sound between the growth and the walls of the latter. Abdominal hysterectomy was therefore performed with great difficulty, on account of the enormous thickness and pendulous condition of the abdominal walls, which fell in a mass over the pubic re-

gion and had to be held up and supported by my assistant while the primary incision was being made. On the eighth day the abdominal stitches were removed, the wound appearing well united and strong. During the night the patient's bowels moved twice, and her efforts at straining opened up the skin wound, the subcutaneous fat protruding. The gaping lips of the incision were brought together by plaster and the wound allowed to heal by granulation. The patient made a good recovery, but a hernia subsequently developed, for which a truss is now worn. She



FIG. 1.

has been in excellent health since and is in all respects a better patient.

A glance at the accompanying illustrations (Figs. 1 and 2) shows the unusually large size of the polypus in comparison with the uterus to which it is attached, as well as some of the nodes with which the organ is studded. From the inner surface of the fundus (Fig. 2) a small nodule will be seen projecting. This was softer and more vascular than the surrounding structures, and microscopical examination of the growth showed it to be undergoing adenomatous degeneration—a condition which,

had it been allowed to continue, would in all probability have resulted in the development of carcinoma and the termination of the patient's life.

VISCERAL DELUSIONS.

In a paper published in 1896 I stated that the visceral delusions of the insane are probably more frequently the mental manifestations of bodily suffering dependent upon morbid condi-



FIG. 2.

tions of the abdominal organs than is generally supposed, and that the actual state of these organs should first be determined by careful examination before such delusions are dismissed as merely figments of a disordered brain. Several illustrations from postmortem finds and operative discoveries were given at that time, and the following case is now added to those already reported:

CASE IV.—H. S., aged 52, married, was admitted to the Eastern Michigan Asylum in 1899, suffering from chronic melan-

cholia of two years' duration. In the spring of 1897 she thought herself pregnant, although her last child had been born twenty-seven years before and there was nothing on which to base her belief. The idea, however, persisted for a year or more, until long after the time when she should have been confined. Since then she has thought her abdomen full of live animals which are devouring her. She refused food because unwilling to feed these animals, and became greatly emaciated. The pulsation of the aorta, which she felt, conveyed the idea of the movement of the animals. On one occasion she mentioned to the attending physician an undue familiarity with the family cat and complained of kittens in the right hepatic region.

Operation.—Abdomen unusually rounded and prominent for a woman of her years; walls thin and devoid of fat. On entering the peritoneal cavity it was at once noted that the omentum was absent. Careful search located the missing apron rolled up and adherent under the right lobe of the liver. When released and spread out the omentum was thin and atrophied and contained but little fat. An excellent recovery from the operation was made, but, although the patient was less emotional and less inclined to groan, there was no change in her mental state up to the time of her death, which occurred some eight months later as the result of an acute intestinal disorder. In this case the visceral delusions were undoubtedly occasioned by the adherent omentum together with the inflammatory conditions (perihepatitis) which resulted in the adhesion of that viscus to the under surface of the liver. The condition had existed for a considerable period of time and the delusions had become fixed as the result of the constant irritation produced in the parts involved. It is not unreasonable to assume that, had the operation been undertaken earlier and the source of irritation removed, the delusion, at least, might have been cured.

SIMULATED INTESTINAL OBSTRUCTION.

CASE V.—S. M., aged 59, married, the mother of six children, an inmate of the Eastern Michigan Asylum for nearly twenty years, and suffering from monomania, complained, August 26, 1899, of pain in the abdomen. Examination revealed some distension and marked tenderness present. The following day the distension became extreme, the abdomen tense, and the temperature rose to $99\frac{2}{3}^{\circ}$. Attacks of vomiting occurred, but were not stercoraceous in character. The bowels moved on the first day of the disorder, but not afterward.

Operation was undertaken for the relief of the probable intestinal obstruction on August 28. At this time the abdomen projected particularly in the lower portion and resembled in appearance the contour produced by a large fibroid growth of the uterus (Fig. 3). The abdomen was tympanitic over the entire surface. On opening the peritoneum the greatly inflated intestines presented, thinned, pale in color, with injected vessels, and the coats of the intestinum angustum contained many ecchymosed spots. There was no collapsed portion of the bowel, and careful inspection failed to reveal either constricting band

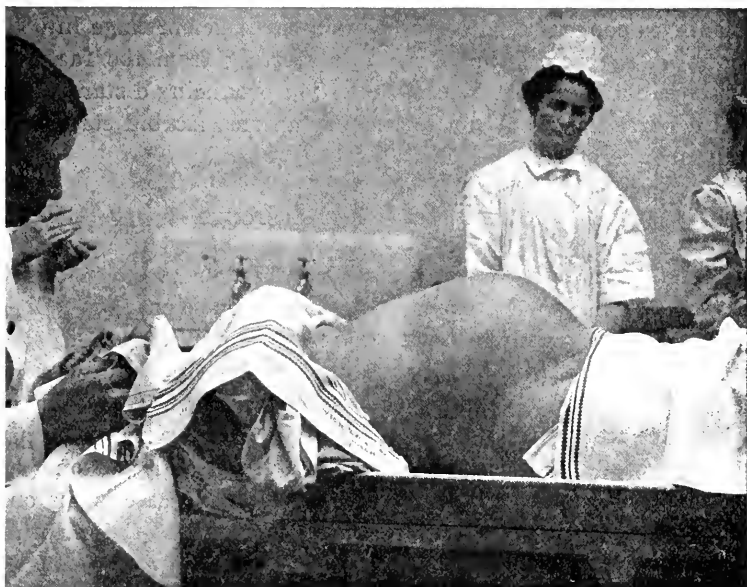


FIG. 3.

or intussusception. The colon was punctured in two places to permit the escape of gas, and the openings afterward closed with eye silk. Slight adhesions were found at the hepatic flexure of the colon and deep in the right iliac region.

The patient recovered well from the immediate effects of the celiotomy, but on the following morning developed right hemiplegia, which, however, did not involve the face. She was aphasic, but sensation was not impaired. During the following day she became more feeble, and, on account of the difficulty in deglutition, was unable to take nourishment. She died on the third day, coma having gradually developed. Trophic sores

formed over the spots of pressure on the paralyzed side, and shortly before death the temperature rose to 103° .

Section cadavericis.—Operation wound firmly healed and dry. Intestines, omentum, and mesentery congested. Large intestine distended to sigmoid flexure. Small hemorrhages into mesentery. The right kidney weighed $3\frac{3}{8}$ ounces, the left kidney $3\frac{1}{4}$ ounces, the liver $37\frac{3}{4}$ ounces, and the brain $37\frac{1}{2}$ ounces. A fine antemortem clot was found in the right internal carotid artery. Atheroma of all basilar, ganglionic, and cortical vessels, especially post-cerebral. Small hemorrhage near left caudate nucleus with an area of softening around it. The whole brain and meninges congested, and there was a small hemorrhage into the pons. This case is particularly interesting from the fact that it shows the effect of cerebral disease in producing distant physical conditions resembling in their symptoms morbid states usually of local origin.

APPENDICITIS AND GALLSTONES.

The frequent finding of gallstones at autopsies on the insane renders it a matter for speculation why, when so common, biliary calculi are so rarely productive of symptoms leading to their detection during life. Appendicitis appears also, in my experience, to be an uncommon disorder among the mentally deranged as I have met with only two or three mild cases during the past twelve years. The association of appendicitis and gallstones has been often noted in the sane, but the following case is the only one of which I have knowledge occurring in the mentally alienated:

CASE VI.—R., aged 34, the mother of three children, was admitted to the Eastern Michigan Asylum December 5, 1898, suffering from mental deterioration with delusions and hallucinatory manifestations. On May 3, 1899, she was seized with abdominal pains and the temperature rose to $102\frac{3}{4}^{\circ}$, with pulse 120, and respiration 30. The bowels failed to respond to either cathartics or enemata. On the following day there was nausea and vomiting, with an evening rise of temperature. On palpation an indurated mass was found in the right iliac region, extending upward toward the liver. On May 5 the bowels moved freely with some pain, and the conditions continued with variations until the 21st, when operation was undertaken.

On entering the abdominal cavity the omentum, caput coli,

and lower portion of the ascending colon were found involved in a mass of adhesions. The appendix could not at first be found, but, after careful search, was finally located, greatly attenuated, elongated, and extending upward to a linguiform process of the right lobe of the liver, to the apex of which it was adherent. The adhesions were separated and the offending tube removed. Convalescence was rapid and uneventful until June 7, seventeen days following the appendectomy, when, shortly after an evacuation of the bowels, the patient again complained of severe pain in the abdomen. This was followed by two attacks of vomiting, and the abdomen became considerably distended. On the following day there was less pain, but there was marked tenderness over the hepatic flexure of the colon, and the abdominal distension had increased. Repeated doses of Seidlitz powder and rectal enemata produced no effect. At this time a large mass below the liver, in a line with the ascending colon and extending downward to the right iliac region, was noted. The patient's skin and conjunctivæ were not discolored. The urine was not examined. Late this same evening the abdomen was again opened, and an elongated, dull reddish-colored, movable tumor resembling the kidney was found reaching from the hepatic region to the site of the appendectomy scar. The tumor was aspirated and then opened, and about six ounces of a clear fluid, followed by about the same quantity each of pus and bile, were evacuated. Exploration with the finger revealed the presence of calculi, and four stones, each the size of a hazelnut, were removed. The walls of the gall bladder were stitched to the parietal peritoneum, a drainage tube inserted into the cystic cavity, and the external wound partially closed. The patient made an excellent recovery from the second operation and was discharged from the institution on July 18 "greatly improved." Succeeding the operation she manifested no delusions or irritability, and conducted herself in a thoroughly satisfactory manner. Her husband could see little wrong about her when he took her away.

GANGRENE OF BOTH EXTREMITIES FOLLOWING VAGINAL HYSTERECTOMY.

CASE VII.—O. H., aged 62, the mother of three children, several miscarriages, was admitted to the Eastern Michigan Asylum December 12, 1885, suffering from chronic dementia. She had already been an inmate of another State institution from 1866

to 1868. In 1899 she complained of irregular symptoms, and examination showed a senile cervix uteri, flush with the vaginal vault, of a soft and spongy feel, bleeding freely when disturbed, and surrounded by numerous adhesions. On account of the suspicious character of the condition in a woman of her years, it was decided to remove the uterus per vaginam, and this was accordingly done November 5, 1899. The angiotribe was used to compress the broad ligaments, but on account of the narrowness of the vagina, and the shortness of its blades, the instrument could not be introduced far enough to grasp the Fallopian tubes, and these were accordingly tied off with kangaroo tendon. During the entire operation the strictest asepticism was observed, and the ligatures used were from a lot that had given rise to no previous trouble in other cases. The patient made an excellent recovery from the immediate effects of the operation, and for nine days convalescence was uninterrupted, the temperature never reaching higher than 100.3° , the pulse running from 98 to 106.

On the 15th, after sleeping soundly for five hours, she awoke greatly excited, was restless and noisy, and complained of pain in the left leg associated with numbness. The temperature of this leg was found to be decidedly lowered, and the skin of the lower part appeared darker than that of the opposite member. The temperature rose to 100° . Restlessness was much increased during the following days, and the discoloration of the leg gradually extended to the knee. Paler spots, followed by bullæ, appeared on the inner surface of the thigh and over the patella, and sloughing at these points finally took place. On the 20th the right leg became involved and underwent similar changes. The patient died on the 24th from exhaustion. No autopsy was allowed, but the probable cause of the gangrene was an arterial thrombosis, the origin of which must remain purely conjectural.

VENTRAL HERNIA.

CASE VIII.—E. R., aged 36, married, an epileptic, was transferred to the Eastern Michigan Asylum in 1899. She had at the time an immense ventral hernia, the skin of the lower surface of which was beginning to ulcerate, while the whole mass gave rise to great discomfort and interfered with locomotion. The diastasis of the recti was so great that the hand could be readily thrust between them and the contents of the pelvis mapped out.

Operation April 12, 1890.—Incision over most prominent part of hernia. The sac was found to be filled with hypertrophied omentum which lined its walls and was universally adherent. About two pounds were amputated and removed. In making the primary incision the bladder, which was drawn high up into the hernial sac and surrounded by adhesions, was inadvertently opened for about two and a half inches. The lesion was immediately repaired by deep and superficial sutures. The redundant abdominal skin was then trimmed away and the external wound closed. As the oozing from the tearing-up of deep adhesions was considerable, a glass drainage tube was placed, and on account of the bladder accident a self-retaining catheter was introduced. Three hours later, on visiting the patient, she fumbled for a moment under the bedclothes and then handed me both the drainage tube and catheter, with the remark, "Here is something which you forgot." It was thought best not to reintroduce the drains, but the urine was thereafter drawn every two hours. In order to obviate any further investigative tendencies, a muff was put on, but this occasioned so much irritability, accompanied by loud "Billingsgate" and profanity, that for quiet's sake it was soon removed. During the following night the patient took off all of the abdominal dressings. These were reapplied and resort again had to the muff. On promise of the patient to behave herself, the latter was discontinued after a few hours. She kept her word and made a perfect recovery. About three weeks later, while the attendant was absent from the room, the patient arose from her bed unaided and walked about. As the result of her exertions, a small abscess which had formed below the centre of the abdominal scar ruptured and discharged freely for a few days. A few weeks later this woman jumped from the rail of a balcony fully six feet from the ground without damage to herself or the abdominal cicatrix. She was subsequently removed to the County House and was there lost sight of.

Such are some of the conditions met with in gynecological practice among the insane. *Mens sana in corpore sano* for us all; but for the mental cripple, the relief of bodily ailments, even when the shattered mind is beyond all hope of help or restoration.¹

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¹ I am indebted to Dr. Jason Morse, Assistant Superintendent of the Eastern Michigan Asylum, for notes of the histories, etc., of some of the above reported cases.

CONSIDERATIONS REGARDING THE BEST METHODS OF CONDUCTING PRIVATE OBSTETRIC WORK.¹

BY

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IN the rapid march of scientific research and the development of greater improvements of operative technique in gynecological surgery it may be well to pause for a moment to consider from a prophylactic standpoint the obstetric branch of medicine, with the view of preventing some of the morbid conditions so prevalent in women during and subsequent to the child-bearing period. From a glance at the clinical histories of many patients treated in dispensaries, hospitals, and private practice, one is impressed by the large number of cases who date the beginning of ill health to childbirth: and there can be no doubt that some do bear testimony of imperfect obstetric work, as though the obstetrician of the past had paved the way for the gynecologist of the present. When Marion Sims so interested himself in the formation of the Woman's Hospital in New York he was perhaps more concerned in the cure of vesico-vaginal fistula than in any other one ailment; but since the obstetric forceps has been more thoroughly understood and appreciated vesico-vaginal fistula has almost become obsolete. Even in large hospitals one rarely meets with a case. May we not hope that in the future other sequelæ of parturition, such as cystocele, rectocele, and subinvolution with its accompanying chronic endometritis and displacements, may be prevented by more thorough aseptic precautions and more care in repairing lacerations at the time of labor? It is not only desirable that we have a small mortality in obstetric work, but let us go still further and lessen morbidity as well. Many busy practitioners claim they do not have cases of sepsis, but if more careful temperature charts were kept they would explain the tardy convalescence, phlegmasias, and other results of infection.

¹Read before the Washington Obstetrical and Gynecological Society, November 18, 1900.

The subject I have selected does not admit of treatment in detail, nor have I anything new to present. My object is to invite a general discussion upon the best methods of conducting private obstetric work, and will consider, first, the care of pregnancy; second, obstetric nursing; and, third, some remarks upon the management of labor and the puerperium.

While most pregnancies need very little treatment medicinally, all should receive watchful care, and unless the physician gives these patients the proper advice they will be misled by their friends. There are many apparently trivial matters in which we should instruct our cases, and if we depend alone upon verbal advice we omit something of importance. For a year or more I have given each case of pregnancy written rules upon this subject, and find that it answers its purpose well. It more thoroughly prepares the patient for her labor and saves the physician from the charge of being derelict in his duty.

As to obstetric nursing, there would hardly seem to be any necessity for instructing nurses in private work who have been well trained in hospital, but they do not always know how to adapt themselves to different surroundings when absent from their regular routine of a well-organized institution, and we may select nurses from various hospitals whose teachings differ on important points. When a nurse is decided upon I give her written rules on obstetric nursing and expect her to follow them in the care of my cases.

THE CARE OF PREGNANCY

Some cases of pregnancy are given much needless advice by their friends and are oftentimes worried and perplexed by misrepresentations which may cause disturbed sleep and other functional derangements of the nervous system. It behooves the physician, therefore, to give all necessary information, and this can be done in a general way by writing, reserving special advice as occasions demand. I sometimes find, when first consulted by cases of pregnancy, that they are making harsh and harmful applications to their breasts and applying greasy substances to various parts of the body in accordance with explicit orders from some one perhaps more inexperienced than themselves. In view of these facts I am glad to gain control of my cases early, thus exerting supervision for as long a period as possible prior to labor.

It should be a comfort to each patient to know that pregnancy is a normal and physiological condition, usually terminating naturally and successfully; but as the border line between health and disease is narrow, any deviation from the normal should be detected early. During the earlier months the patient should be seen by the attending physician every two weeks, either at her home or in his office, and at each visit a four-ounce bottle of urine from the twenty-four hours' collection should be presented for analysis. This should be done on the 1st and 15th of each month, and during the last month a specimen should be sent each week, labelled with name, street, and number, stating the amount of urine passed during twenty-four hours.

The Nurse.—The selection of a suitable nurse is important, and the physician should be consulted concerning the choice.

Clothing.—The clothing must be loose; corsets and belts which constrict chest, waist, or abdomen must not be worn, and the weight of the skirts should be borne by the shoulders, as by the "Ferris Waist." A broad abdominal band may be worn if it gives comfort. The underwear should be of wool, in weight to suit the season, and should consist of vest with long sleeves, and long underdrawers, or combination suits in one garment. Outer garments should fit loosely and comfortably, and should be enlarged as much as occasion requires. Circular garters and high-heeled shoes should be avoided.

Diet.—The food should be plain and easily digestible. Fresh red meat is to be taken only once daily. Fresh vegetables and ripe fruit in season are beneficial. Avoid over-indulgence and any article which from experience has proved harmful. The evening meal should always be light. Candies, preserves, pickles, pastries, and fried articles are not usually easily digested. Avoid veal, pork, hashes, stews, rich gravies, and fancy dishes. Only the simplest desserts are to be taken. Milk, coffee, tea, light wines, and beer may be consumed according to the woman's previous habits.

The Teeth.—The teeth need special care. A soft brush should be used after each meal and the mouth rinsed with a solution of Listerine—one teaspoonful to a half-glass of warm water. A dentist should be consulted, and, if necessary, temporary filling used to preserve the teeth from further decay, which is more likely to occur in pregnancy than in the non-pregnant state. It is well to avoid extraction of a tooth in pregnancy, unless the severity of pain demands it.

Bathing.—Avoid Russian, Turkish, and surf bathing. Hot and cold baths are not to be taken unless ordered. Warm baths taken frequently are beneficial, and the best time for the bath is immediately before retiring. Vaginal douches are not to be used unless ordered. If there be much vaginal discharge the physician should be notified.

Exercise.—Up to the third month and during the last weeks of pregnancy the patient is usually indisposed to physical exertion, and she may regulate the amount of exercise by personal inclination; but in the interval, however, exercise in the open air is beneficial, to the point of slight fatigue. Driving over smooth roads is a good way of obtaining fresh air when walking is not comfortable. Avoid dancing, bicycling, horseback riding, skating, sewing machine, driving over rough roads, heavy lifting, unnecessary trips up and down stairs, and all violent exercise. Railroad travel in comfortable cars can ordinarily be permitted from the third to the eighth month, but it is best not to undertake a journey during the few days corresponding to a menstrual period. Seasickness attendant upon an ocean voyage may exert an unfavorable influence upon pregnancy.

Ventilation.—The pregnant woman needs abundance of pure fresh air, owing to the demand upon her supply of oxygen by the fetus, hence crowded gatherings in theatres, churches, and public halls are to be avoided. The bedroom should be well ventilated, containing an open fireplace, but windows should not be left open during the night in cold weather.

Rest and Sleep.—There should be a regular hour for retiring—not later than ten o'clock—and the evenings should be spent quietly at home without much company, to promote restful nights. The patient should remain in bed until an hour after breakfast, if there be any tendency to morning sickness or nausea. There is no objection to sleeping with the arms placed above the head. One hour, at least, should be spent reclining on a bed or comfortable couch after the midday meal.

Attentions to the Breast.—The breasts should be warmly covered and freed from all compression. The nipples should be kept clean by daily washings with simple water, and during the last two months bathe them each morning with cologne water and gently apply cocoa butter at night. By this simple plan the nipples are rendered less sensitive and less liable to fissures and cracks.

The Bowels.—Constipation is frequently met with, and it may be controlled in some cases by a suitable diet; but when persistent, medical advice should be sought. It is very desirable that at least one good movement be had daily, and the neglect of this increases the tendency to hemorrhoids.

Room.—The room for confinement should be large and sunny, well ventilated, communicating with neither bathroom nor water-closet. If it contains a stationary washstand the outlet should be hermetically sealed. An open fireplace is desirable. The furniture (not upholstered) should be simple, consisting of only essential pieces, viz., a bed, two or three chairs, bureau, washstand, two tables, a few clean rugs, and as few hangings as is consistent with comfort. It is a great convenience to have an iron bed, three-quarter size, with wire springs and hair mattress, and the bed should be sufficiently high. Antiseptic vulva pads for use during and after labor should be prepared at least one month before full term. For this purpose purchase fifteen yards of gauze or cheesecloth and one and a half pounds of absorbent cotton, and consult the physician or nurse as to preparation and sterilization. At the same time advice will be given as to abdominal binders. The following articles should be obtained and placed in readiness at least one month before expected labor: one dozen clean sheets, two dozen freshly laundered towels, a soft blanket for baby, large and small safety pins, a papier-maché basin, a granite-ware douche pan, two clean hand basins, and slop jar with cover.

Baby's Clothing.—Three bands—three strips of soft flannel five inches wide, twenty-four inches long. Four shirts, of cotton-and-wool or silk-and-wool flannel, high neck, long sleeves, and open down the front. Six slips, sleeveless and of flannel, thirty-three inches long from neck to hem. Forty-eight napkins of soft linen, cotton, or cotton flannel, eighteen inches square. Six night slips—may be made of Lonsdale muslin, perfectly plain without a yoke; in winter use flannel. Eight dresses. Two wrappers, of silk-and-wool flannel or outing flannel—cashmere is pretty, but not as warm; they may be tied in front with ribbons or fastened with buttons. Twelve pairs of knit woollen socks. Three blankets of silk-and-wool flannel or cotton-and-wool flannel; they should be a yard long and three-quarters of a yard wide. Two cloaks, of cream cashmere. Two hoods, made of cashmere in cold weather; silk, lace, muslin, or silk mulle in summer. Eighteen bibs, not usually required before teething, made

of lawn or fine Lonsdale cambrie, with a thin layer of cotton batting between the outside and lining.

Baby's Basket.—Large and small safety pins; talcum powder (box and puff); fine soft sponge; soft brush for hair; castile or ivory soap; cold cream; blunt scissors for nails, etc.; soft gauze for cleaning mouth; soft towels for bath; bath blanket; a band; a shirt; a flannel night slip; a plain night slip; a napkin; one pair of socks; baby blanket; sweet oil, one ounce.

OBSTETRIC NURSING.

The following rules are applicable to the care of most obstetric cases, while special directions will be given to meet special conditions. Much misunderstanding and unpleasantness may be avoided if the nurse and patient make a definite agreement concerning the time when the service begins, the number of weeks the nurse is needed after labor, the amount per week if the date of confinement is delayed and the amount per week after labor; otherwise a great injustice may be done the nurse and much time lost if she must wait indefinitely without pay.

The Call.—The nurse should respond with the least possible delay, but should not come direct from any source of contagion; e.g., measles, scarlet fever, diphtheria, whooping cough, or any septic case.

Preparation of Patient.—Make no vaginal examination and give no vaginal douche, either before or after labor, unless specially ordered by the attending physician.

If labor has begun, give simple enema. The patient's hair should be dressed so that lying in bed will not entangle it more than is inevitable. Record the antepartum temperature, pulse, respiration, and time when labor began. The nurse, having dressed in a fresh uniform, cleanses her hands as follows: The hands and nails, closely pared and cleaned, are scrubbed for ten minutes in warm water, using green soap and a fresh nail brush, and are then soaked for five minutes in 1:2000 bichloride solution. It is desirable, if there be time, to have the patient take a full warm bath and put on entirely fresh underclothing; if not, then thoroughly bathe external genitalia and thighs with warm water and clean soap and afterward with 1:2000 bichloride solution. When labor has progressed sufficiently for the patient to remain in bed, a sterilized sheet is pinned around her hips, opening on the right side, and the underclothing is rolled up

under the arms to prevent soiling and the necessity of changing after labor.

Preparation of Bed.—The bed (preferably a single iron bed with hair mattress) should be placed so as to be easy of access, not in a draught, and to avoid undue exposure to bright light. The mattress is covered by a large rubber sheet two yards square; over this is tightly drawn a cotton sheet, then a small rubber sheet, one yard square, across the middle of the bed, and over this is securely pinned a folded sterilized sheet to serve as a pad. The small rubber sheet and pad can be removed after labor. A top sheet, two blankets, and spread complete the preparation of the bed.

Sterilized Water.—Secure two or three pitchers, scrub them well with hot water, and fill them with water that has been boiling at least one half-hour, and tie clean towels over their tops. This water is to be used for all purposes about the patient and for making antiseptic solutions.

Tables and Chair.—For the convenience of the physician a small table, covered by a sterilized towel, is placed on the right side of the bed near the foot; also a straight-back chair. Secure basins (four if convenient) and scrub them with hot water; these are to contain the proper solutions for the physician's hands, and are to be arranged as follows: First, hot water, with green soap and nail brush; second, potassium permanganate solution; third, oxalic acid solution; and fourth, bichloride solution 1:2000. If four basins are not to be obtained, the nurse should assist in preparing the solutions as needed, having a clean slop jar conveniently placed. The nurse should see that all other articles ordered for the labor are at hand, viz.: placenta basin covered by a sterilized towel, douche pan, abdominal binder, vulva pads, safety pins, cracked ice in a clean dish, a lemon peeled with clean hands and knife and cut in two. The patient should be kept in bed until the physician arrives. Do not indulge in unpleasant gossip or the recital of *dreadful* experiences, but rather encourage cheerfulness and confidence. At no time in the management of a case should the nurse express surprise or indicate by her manner a feeling of consternation. Friends and neighbors should, if possible, be excluded from the room. Their injudicious tales and expressions of sympathy are often absolutely painful.

The Bladder.—During labor occasionally remind the patient

to pass water, using a clean vessel, but *never* allow her at this time to make use of the water-closet.

Nourishment during Labor.—If the pains are not severe or frequent, and there be no nausea, the patient may be allowed milk, beef tea, gruel, or tea in small quantities.

Muscular Cramps.—Muscular cramps in the lower limbs may be relieved by stretching the limbs straight out, gently rubbing the painful spot, or by grasping and holding the muscles.

Baby's Blanket.—The flannel blanket (and a piece of sterilized gauze for covering umbilicus) should be warmed and placed at the foot of the bed, to be wrapped around the infant as soon as born; and when the cord is severed the infant should be placed on its right side in some warm part of the room out of harm's way.

The Placenta.—After the infant is removed, the nurse then holds a clean basin against the perineum to receive the afterbirth and discharges, preserving the same for the physician's inspection. After the completion of the placental stage it is well to allow the patient a few moments' absolute rest before bathing her, which latter should be done with the least possible exposure to cold air, for a chill is liable to occur at this time, and an extra blanket should always be on hand to meet this emergency, which is, however, not serious.

Postpartum Hemorrhage.—Since asepsis stands out preeminently as the first and most important duty of the obstetric nurse, the prevention and care of postpartum hemorrhage ranks second. This accident (fortunately an exceedingly rare one) occurs within the first hour after delivery, when the medical attendant is on hand, or it may occur within the first twenty-four or forty-eight hours after birth, rarely later. If the hemorrhage is external, the nurse will readily appreciate it from her experience with the normal lochial discharge in other cases of labor; if it be concealed, the patient quickly becomes pale, faint, restless, gasps for breath, pulse is quick and feeble, and symptoms of collapse rapidly follow. The physician should be sent for at once, and in the meantime her first thought should be of the uterus and its probable condition of relaxation. The bandage should be hastily removed and the hand placed over the abdomen. If the womb is not felt, rub the abdomen until the uterus contracts and can be pressed down toward pelvic cavity as a hard body. The nurse should not relax this hold until after the physician arrives. Direct some one else to remove pillow from under

patient's head; have the foot of the bed elevated and placed upon a stool or low chair. A cold towel upon the uterus excites contraction. Give hypodermatic injections of strychnine one-fortieth grain, also of ergotol twenty minims. The patient should be kept absolutely quiet. Plenty of hot water should be on hand. If the physician delays his coming and the hemorrhage continues, give hot vaginal douche of sterile water.

Convulsions.—Should convulsions occur in the absence of the physician, no time should be lost in sending for him. All that the nurse can do is to keep her patient lying flat down; to see that there is no tight clothing about the head or chest; to prevent biting of the tongue by pushing it, if possible, behind the teeth and placing a rolled towel or something between the teeth; to admit plenty of fresh air into the room; and to restrain meddlesome interference on the part of bystanders. Don't attempt to force stimulants, etc., down the throat while the patient is struggling and unconscious. When the fit is over, the nurse may administer a soap and warm water enema with advantage.

Fainting.—Fainting during labor should always lead to a suspicion of loss of blood or heart weakness, and the medical attendant should be summoned at once, if not already on hand. On no account raise the patient up when fainting, however much she may desire it. The horizontal posture, plenty of cool, fresh air, and sprinkling a little water on the face, and firm, steady pressure with the hand over the uterus comprise all that it is desirable for a nurse to do.

After Delivery.—For the first two hours after labor the patient must lie quietly upon her back (the nurse sitting close by); then she may turn on either side. When the nurse first bathes the patient, and it becomes necessary to move her body in adjusting the binder, etc., care should be taken to do this while the uterus is firmly contracted and not during the interval of relaxation.

A Suggestion.—From bedside experience I find it advisable to make the following suggestion, which, if carried out, will in many instances prevent unpleasant friction between patient and nurse: The physician on entering the patient's room will find prepared for him a basin containing warm water and nail brush, with towel, and the nurse will hand him the clinical report. The physician will interrogate the patient, and the nurse should not interrupt the conversation, even if she does not agree with all that is told him. With some cases it is well for the nurse to find it convenient to absent herself for a few moments at this time.

in order that the patient may have an opportunity to make any complaints and feel that they will be attended to. The nurse gives a full account outside of the bedroom and receives the doctor's orders, which should not be heard by the patient.

The Record.—A daily record of clinical facts and a chart showing the temperature curve are to be kept. The temperature, pulse, and respiration are to be taken at 8 A.M. and 5 P.M., care being taken that the temperature is not influenced by cold or warm drinks.

Visitors.—Visitors are not allowed to see the patient until the physician gives consent, and members of the family must not engage the patient in lengthy conversations. All excitement and startling news must be avoided.

External Genitalia.—The external genitalia are to be bathed three or four times daily with warm bichloride (1:2000) solution, using sterilized gauze. It should be ever borne in mind that there are three sources of infection: first, the vulva; second, the nipples; third, umbilicus. Sepsis may be conveyed from any one of these to the other two if the nurse does not take the proper care to disinfect her hands each time she handles one or the other. The patient's limbs and body may be bathed once daily with alcohol and water.

Douche Pan.—Never put the douche pan on the floor, *e.g.*, under the bed, and then place it directly, without disinfection, under the patient's hips, for that practically brings the floor in contact with the vulva. Keep the douche pan, after proper cleansing, wrapped in a clean sheet or towel when not in use.

The Catheter.—Try to avoid the use of the catheter, and it will be very rarely found necessary in obstetrical work. If the patient cannot be made to pass urine on a douche pan with the aid of hot wet towels over bladder, etc., she may be raised up in the sitting posture in bed on the douche pan or other vessel. If the catheter be found necessary, first boil a small glass or soft-rubber catheter for at least ten minutes. Having sterilized your hands, separate the labia and wipe the vestibule with a bit of sterile gauze or cotton and introduce the catheter by sight, no lubricant being necessary.

Mother's Diet.—First forty-eight hours: Milk (one and one-half to two pints a day), gruel, soup, one cup of tea a day, toast and butter.

Second forty-eight hours: Milk, milk toast, poached eggs,

porridge, soup, cornstarch, tapioca, wine jelly, small raw or stewed oysters, one cup of coffee or tea a day.

Third forty-eight hours: Soup, white meat of fowl, mashed potatoes, and articles mentioned above.

After the sixth day return cautiously to ordinary diet, three meals a day, meat at one of them, of an easily digestible character, white meat of fowl, tenderloin of beef, etc., and a glass of milk at least three times a day between meals and before going to sleep at night; also a glass in the middle of the night.

Milk Leg.—If the patient complains of pain on the inner side of thighs, and especially with some elevation of temperature, don't mistake this for muscular rheumatism or cramps and rub the part; it is more likely indicative of inflammation of the veins and lymphatics, and requires absolute rest. The painful limb should be enveloped in cotton, gently bandaged, and elevated.

Ten Days.—For the first ten days, at least, the patient must remain in the horizontal position; she may then sit up in bed, and get out upon a sofa on the fourteenth day, and after two or three more days she may walk about the room. When four weeks are past she may go down one flight of stairs daily for another week. During this time, and for several months more, the patient should avoid heavy lifting.

The Bowels.—If by the evening of the second day after labor the bowels have not moved, give a half-bottle of the solution of the citrate of magnesia, the rest of the bottle the following morning before breakfast, and two hours later, if necessary, administer a simple enema.

The Breasts.—If the breasts become greatly swollen, hot and painful, and are not relieved by the regular periods of nursing together with the saline purge, other means must be resorted to. If the secretion of milk is excessive, an English breast pump may be used frequently, and the breast can be gently rubbed with oiled finger tips directed toward the nipple; only the gentlest manipulation is beneficial. Cloths may be soaked in a warm boric acid solution (one teaspoonful to the pint) and applied over the breasts. If nipples are sensitive or cracked, and nursing painful, much relief will be derived from the use of a Phoenix nipple shield (without a tube). A suitable mammary binder sometimes gives comfort and prevents the breasts from sagging down. Between nursings the nipples should be covered by a piece of sterilized gauze.

Afterpains.—Some patients are annoyed by afterpains, and,

when nothing special has been ordered, one teaspoonful of paregoric in a little water may be given and repeated at intervals of two hours, if necessary, to avoid a restless night.

The Infant's Bath.—It is very important not to expose the infant to cold, and only a few minutes should be consumed by its bath at first, which is given during the first week on the nurse's lap. By carefully avoiding undue exposure at this time subsequent kidney trouble may be prevented. The first bath consists of gentle rubbing with olive oil and subsequent cleansing with warm water not over 100° F.

Umbilical Cord.—The umbilical cord is to be dressed with salicylated cotton or sterilized gauze and boric acid powder, and allowed to remain so until it drops off, each day dusting with boric powder.

Diapers.—Change diapers sufficiently often to keep the infant clean and dry. Use cold cream and talcum powder for chafe.

The Infant's Record.—Keep a written record of the general condition of the infant, its feeding, sleeping, umbilicus, bowels, bladder, digestion, etc., and once daily its rectal temperature.

Nursing.—The mother should have sufficient rest before putting infant to the breast, and the nipples are to be gently bathed each time, before and after nursing, with boric solution. Nursing must be at regular intervals, every two hours during the day and four hours during the night, allowing the infant to remain not more than twenty minutes each time. The hours for nursing are as follows: 2, 6, 8, 10 and 12 A.M., and 2, 4, 6, 8, 10 P.M. If the infant cries to nurse before the regular time, it may be allowed to fifteen minutes earlier; on the other hand, if asleep when nursing time comes it may sleep fifteen minutes over time before being awakened. If the milk is abundant, one breast may be sufficient for a feeding or both may be used. After nursing, the infant should be placed in its bed and allowed to remain there until next feeding hour. Unnecessary handling promotes discomfort to all concerned. The infant should not be fed before the milk appears, unless by the physician's orders. Warm water is all that it needs at first.

Infant's Bladder.—If infant has difficulty in passing urine, apply hot wet towel over bladder.

Infant's Bowels.—If constipated, give more water to drink. Use a small gluten suppository or an injection of one ounce warm water into bowel. One stool a day is sufficient, although many infants have more.

Infant's Eyes.—Examine the infant's eyes carefully and report at once any discharge or evidence of inflammation.

Coryza in Infants.—Most infants show some symptoms of cold in nose, such as sneezing, mucous discharge, etc., and the application of a little vaselin in each nostril several times daily is all that is necessary in most cases.

Infant Rash.—Very often a rash appears on infant's body, but in the absence of fever it is of no pathological significance.

Infant Exercise.—An infant should be encouraged to exercise in the following way: At least twice a day it should be allowed for fifteen or twenty minutes the free use of its limbs by permitting it to lie upon a bed in a warm room, with all clothing, except the shirt, stockings, and napkin, removed. An infant should not be rocked to sleep, but laid in its crib wide awake and the room darkened. No rubber nipple should be sucked as a pacifier. When an infant cries simply to be taken up it should not be indulged. An infant should be lifted from its bed as follows: The right hand should grasp the clothing below the feet and the left hand should be slipped beneath the infant's body to its head: it is then raised upon the left forearm. Infants who are naturally nervous should be left much alone, should be seen by but few people, should be played with very little, and should not be quieted by soothing syrups. The kissing of infants upon the mouth by other children, by nurses, or by people generally, should not be allowed, as tuberculosis, diphtheria, and other serious diseases may be thus communicated.

Colic.—If infant has "colic," when no constipation or other special functional condition exists, see that its feet are warm; place them against a warm-water bag or hold them before an open fire; apply a hot flannel to abdomen; massage abdomen gently with a warm hand; give simple enema, if necessary; also one teaspoonful of warm water with one drop of brandy by mouth, repeated several times if necessary.

Spasmodic Croup.—For spasmodic croup, which is very rare in young infants under six months old, have the room very warm; apply hot cloth or poultice over throat, and keep a kettle boiling in the room. This is more efficacious if the infant is placed in a tent made by a raised umbrella, with a sheet thrown over it, and the steam introduced beneath the tent. If the symptoms are urgent, give ten drops of syrup of ipecac every fifteen minutes until emesis occurs.

TWISTED PEDICLE IN OVARIAN TUMORS.¹

BYWILLIAM P. CARR, M.D.,
Washington, D. C.

TWISTING of the pedicle is mentioned by all writers upon ovarian tumors as a very serious accident, and one of not very infrequent occurrence, but I have not been able to obtain any accurate figures as to its frequency. The severity of the symptoms, as well as the danger, depends in great measure upon the amount of torsion and the amount of resulting interference with the circulation in the tumor. Slight twists may occur in which there is little disturbance and the twisting may pass unnoticed, or be mistaken for an attack of colic or mild catarrhal appendicitis. A long, slender pedicle may be completely rotated once, or even twice, without serious disturbance of the circulation, and may produce slight subjective symptoms, or even none at all. Women with small ovarian tumors frequently have such attacks of pain as might be caused in this manner; and operators have frequently found one or more twists in a pedicle where no severe symptoms had been present and where the tumor showed no signs of degeneration.

It can hardly be questioned that the symptoms are caused primarily by pressure upon the nerves and blood vessels of the pedicle, and that they may be very slight or very severe in accordance with the amount of pressure. It will be seen at once that it is impossible to get any data in regard to slight twists, and that, as there are all grades of severity, it is difficult to draw a line between trivial and serious cases. In general terms it may be said that severe and dangerous twisting of the pedicle occurs in two or three per cent of all ovarian tumors, and, according to Garrigues,² is more common in dermoid cysts than in other varieties. The twisting is due to accidental mechanical conditions and movements, and is of course favored by a long

¹ Read before the Washington Obstetrical and Gynecological Society, December 21, 1900.

² Diseases of Women, p. 584.

pedicle and by a comparatively small tumor that is free from adhesions.

When a serious twist occurs suddenly, the veins of the pedicle become occluded more completely than the artery, and an intense passive congestion of the tumor occurs with more or less complete stasis. This intense congestion causes interstitial hemorrhages by rupture of small vessels, and later when the walls of the vessels, together with the other tissues of the tumor, begin to disintegrate from lack of circulation and nutrition, large hemorrhages may occur in the sac and, from the free surface of the tumor, into the peritoneal cavity. Peritonitis soon begins, in nearly all cases, in the neighborhood of the tumor and rapidly spreads. This peritonitis, I believe, is not at first of bacterial origin, but is due to the diffusion of chemical poisons resulting from katabolic changes in the dead, or dying, cells of the tumor. The poison is similar to that absorbed from large superficial burns, and acts as a powerful irritant to the peritoneum and abdominal viscera. This chemically produced peritonitis, however, favors the penetration of micro-organisms through the intestinal walls, and the necrotic tissues of the tumor offer them a most favorable soil in which to grow. A septic peritonitis is therefore the usual termination, unless prevented by surgical interference. Recovery is possible, however, and may result in two ways: by untwisting of the pedicle before necrosis has occurred, or by resistance to infection and absorption or calcification of the tumor. Such cases have been recorded, but are, of course, extremely rare, and it would be folly to expect any such favorable termination in a given case.

In some cases the symptoms develop gradually or by a succession of subacute attacks. This is due to a gradually increasing torsion, or to a succession of slight twists in the same direction, or more often to gradually increasing swelling and pressure in the pedicle caused by partial obstruction of the veins. The most constant symptoms are pain, nausea and vomiting, and fever with prostration and rapid pulse. Uterine colic and a bloody discharge from the uterus are frequent symptoms. The uterine discharge may resemble menstrual blood or may be clotted.

The pain and nausea are caused primarily by pressure and stretching of the ovarian nerves in the pedicle, and, later, are intensified by peritonitis. The pain is felt first in the region of the ovary and is paroxysmal. It has been described in many re-

ported cases as shooting down into the thigh or up into the lumbar region. It may soon become general from the occurrence of peritonitis, but the sharp paroxysms of pain usually remain localized, even when tenderness and distension are general. In the majority of cases, according to Joseph Tabor Johnson,¹ the twisting of the pedicle occurs slowly and at first produces but few symptoms. This gradual onset is caused, I believe, oftener by a sudden twist that is just sufficient to cause partial obstruction to the veins. This causes a gradually increasing passive hyperemia and swelling of the tumor and of the pedicle down to and around the point of obstruction, and this swelling gradually increases the pressure and completeness of the occlusion of the veins. Finally thrombi form in both veins and arteries of the pedicle. But the kink may become untwisted at any time previous to thrombus formation, and the symptoms disappear, to recur some weeks or months later.

It will thus be seen that the pain may be sudden and violent, or may come on in gradually increasing paroxysms, or that there may be recurrent attacks at intervals of from a few days to six months or more. There is nothing diagnostic or especially characteristic about the pain, except its location and more or less paroxysmal nature, and if the right ovary is the one affected it may exactly resemble the pain of acute or of recurrent appendicitis.

Nausea, vomiting, prostration and rapid pulse, like the pain, may begin suddenly or gradually, or occur in recurrent attacks. They are also present in appendicitis and other affections. But, while not specially diagnostic of twisted pedicle, they show, in connection with the pain and tenderness, that a grave lesion is present and point to its situation. The temperature may be subnormal at first from shock, but usually rises above normal within twenty-four hours, and may reach a high point after the development of peritonitis. Taken in connection with the preceding symptoms, either subnormal temperature or fever is a further indication of a grave abdominal lesion. Uterine colic and bloody uterine flow, when present, should call attention to the ovary or tube as the seat of the lesion; but they are also present in ruptured tubal pregnancy and may be accidentally present in appendicitis, and coupled in both cases with symptoms nearly or quite identical with those of twisted pedicle.

The diagnosis is therefore not easy, unless the presence of an

¹ Dennis' System of Surgery, vol. iv., p. 654.

ovarian tumor has been previously made out, or unless the tumor is large. But twisting usually occurs in small tumors before they have formed adhesions, and is often the first symptom to call for any examination. Johnson¹ says: "The diagnosis in most of the reported cases was not made until the actual condition became apparent at an operation done hurriedly to save the patient's life." It is only by a careful physical examination that the diagnosis can be made from appendicitis, tubal pregnancy, localized tubercular peritonitis, or acute tubal disease. Even then a small ovarian cyst might be readily mistaken for an appendical abscess, or a distended Fallopian tube, or a tubal pregnancy.

Where the tumor has been previously recognized, or where it is large, the diagnosis presents no difficulties; but in small, previously unrecognized tumors it is difficult and often impossible without exploratory incision. When it is remembered that a large proportion of ovarian tumors occur in young single women where no satisfactory examination can be made without anesthesia, and that the patient, when first seen, usually has an extremely tender abdomen, it will be seen that physical examination cannot be relied upon for a differential diagnosis. Fortunately the differential diagnosis is not of practical value, and, beyond the location of the incision, could not in any way influence the operation. The symptoms all point to a grave lesion that requires surgical interference, and the operation can be done equally well through a median or lateral incision.

The prognosis without operation is almost certain death; and even if the symptoms subside and temporary recovery occurs, the patient, except in very rare cases of absorption, is left with her tumor, which will prove fatal in a few years at most, unless removed. The treatment is immediate removal of the tumor. The sooner this is done the better, as peritonitis and other grave complications may thus be avoided. The mortality in early operations should be less than in ordinary ovariectomy, for the operation will be an easy one on account of absence of adhesions. Even when aseptic peritonitis is well advanced, a prompt recovery may be expected; but when infection of the mass and peritoneal cavity has taken place, the mortality will of course be high. The operation of ovariectomy is too well known and perfected to need any remarks. I would suggest, however, that in all cases where septic infection is present or

¹ Loc. cit.

suspected, a pint or more of hydrogen peroxide be poured into the wound in the manner described by Dr. Robert T. Morris in his operations for appendicitis. The peritoneal cavity may thus be pretty thoroughly cleansed and disinfected.

The following cases well illustrate the symptoms and the anatomical changes, the first in the earlier stages, and the second at a later period. The second also shows the difficulty of the diagnosis even in a typical case.

CASE I.—My first case was a white woman, aged 24, single, with fairly good general appearance and health. I examined her in October, 1899, found an ovarian cyst eight or nine inches in diameter, and advised operation. She afterward went to Dr. Fry, who also told her she had an ovarian tumor and advised its removal. She was suffering no inconvenience, except from the size of the growth, and was inclined to put off the operation. On December 1, however, she was seized with quite severe spasmodic pains in the region of the tumor and consented to have it done at once. I removed the tumor at the Emergency Hospital December 2, 1899. I found two twists in the pedicle, which was about three inches long. The blood supply to the tumor was not entirely cut off, but there was severe venous congestion and numerous infiltrating hemorrhages appeared in the wall. There were no adhesions and no peritonitis, and the patient made a smooth recovery.

I present the tumor, which I stuffed with cotton and dried, for your inspection. The walls of the cyst were one-quarter of an inch thick and have dried as thin as paper. Otherwise the tumor presents much the same appearance as when fresh and the hemorrhagic infiltrations show distinctly. It was a multilocular cyst with two large compartments and several small ones. One of the large compartments contained a thin fluid and the other a thick glue.

CASE II.—A single, white girl, 19 years of age, of excellent health and physique. I received a telegram asking me to come to her home near Winchester, Va., prepared to operate for appendicitis. I saw her December 7, 1900, in consultation with Dr. Bushong, her attending physician. She gave the following history: Had a severe attack of pain in the right iliac region about a year ago, which confined her to bed for three days. Last August, while on a visit to Baltimore, she had a second attack, which was severer and kept her in bed a week. She was seen by Dr. Allen, who pronounced it appendicitis. The third attack

began on the evening of December 1, 1900, when, after romping with some children, she felt sharp pains in the right iliac region. Next morning, on attempting to rise, the pain became violent and was accompanied by nausea and great prostration.

She was treated for several days by her father, who is a physician, and who thought she had a uterine displacement. She grew worse: Dr. Bushong was called in and pronounced it appendicitis. Dr. Willie McGuire saw her December 6, and said it was a plain case of appendicitis and should be operated upon.

When I saw her on the morning of the 7th she thought she was much better: but this, I found, was due to a grain of morphia and forty drops of laudanum. I found her temperature 102°, pulse 120 and weak, whole abdomen very tender, pain and tenderness most marked at McBurney's point. I could feel a tumor in the right iliac region, but took it for an appendical abscess and agreed in the diagnosis of appendicitis. Indeed, the case seemed so plain that I did not think a vaginal examination necessary, and no satisfactory physical examination could have been made without anesthesia.

I operated at once, with the assistance of Dr. Frank Hagner and a nurse who accompanied me, and of Dr. Bushong, who gave the ether. My incision was the usual one for appendicitis. I found the muscles and fascia infiltrated and obscured, and remarked to Dr. Hagner that we would certainly find pus in this case. I was surprised, therefore, when on opening the peritoneum black, tarry blood appeared, and a moment later my finger pushed through the rotten cyst wall and there was a gush of a quart of serous fluid and black clots. The sac was everywhere adherent to the intestines, but the adhesions were soft and easily separated. There were three distinct twists in the pedicle, which may have accounted for the three attacks of pain. There was much thickening of the bowel in the neighborhood of the tumor, and the whole intestine was very red. I ligated the pedicle, which was about the size of my finger, with catgut, and put a clamp on it to prevent the ligature slipping while I was sponging the pelvic cavity. There had been a good deal of hemorrhage from the outside of the sac, and clots and fluid had escaped when the sac ruptured. When this was all sponged out I found the ligature, clamp and all, had slipped or torn off from the pedicle, but there was no bleeding. I reapplied the ligature and closed the abdomen. The patient has made a beautiful recovery, but is still in bed, as it is just two weeks to-night since

the operation. The appendix and opposite ovary and tube were normal and were not disturbed.

I present the tumor for your inspection, as it still shows the degenerative changes, though much decolorized by formalin solution.

A CASE OF FEVER DURING THE PUERPERIUM CAUSED BY
A LARGE LUMBRICOID WORM IN THE INTESTINE.

BY

D. W. PRENTISS, JR., B.S., M.D.,

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(With chart.)

I AM indebted to Dr. Henry D. Fry, Obstetrician to Columbia Hospital, for permission to report this case, which was treated during my service as interne in Columbia Hospital for Women.

Annie B., white, 16 years old, single, a resident of this city and a baby-nurse by occupation, was brought to that institution in labor August 11, 1899, at 9:30 A.M.

Previous History.—Before puberty she had typhoid fever and measles; since then has been in good health. Menses normal. Date of last menstruation, January, 1899; utero-gestation about seven months.

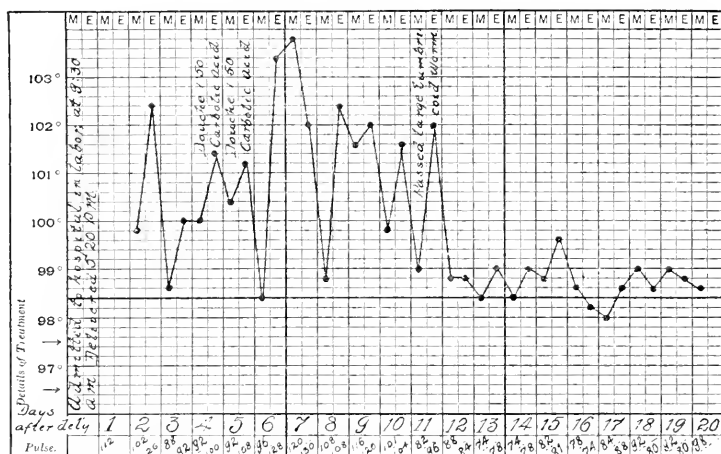
Condition on Admission to Hospital.—Temperature 100° , pulse 120, strong and regular. The walls of the abdomen were thick and rigid; a large amount of liquor amnii; pains strong and frequent; the back of the fetus was anterior, and a mass occupied the pelvis which was thought to be the head; the soft parts could not be made out. A vaginal examination was not made at this time. The fetal heart sound was heard several centimetres below the umbilicus in the median line.

At 4 P.M. the pulse was 120, the pains frequent and strong; the fetus occupied a nearly transverse position. Vaginal examination revealed the cervix dilated about six centimetres in diameter, the breech well engaged and an arm caught tightly between it and the cervical wall.

The patient was etherized; the legs of the fetus brought down; the arm pushed back, and, after the cord was examined and no

pulsation found, podalic extraction was completed without delay. The child was still-born, there being but slight hemorrhage before delivery and none after; the placenta and membranes complete were expelled spontaneously ten minutes later. Retraction of the uterus was satisfactory and neither the perineum nor the cervix was lacerated.

On the evening of the second day of the puerperium the temperature was 102.4° , pulse 102: the abdomen, with the exception of the hypogastrium, was tender, especially marked about the umbilical and hypochondriac regions. From this time on, for a period of nine days, fever of an irregularly intermittent character was present, accompanied by tenderness and pains in the upper two-thirds of the abdomen. There were no chills at any



time, and the fever was uninfluenced by quinine in full doses. The blood was examined and no malarial parasites found; the leucocytes were not increased in number.

Intruterine cultures were taken on the fourth and fifth days, and neither staphylococci nor streptococci were present: a spore-bearing bacillus was found in moderate numbers in the bouillon of the fourth-day culture. The cultures were followed by intrauterine douches of 1:50 carbolic acid. The lochia were normal throughout. At no time were there present signs of pelvic inflammation. On the eleventh day a large worm, *Ascaris lumbricoides*, was passed by rectum, and the next day the fever, pain, and tenderness of the abdomen disappeared and did not return; the patient left the hospital thirteen days later.

Diagnosis.—From malaria it was distinguished by the absence of the parasite from the blood and by the failure of the therapeutic test—quinine; from septicemia, by the absence of the common pus-producing organisms from the uterine cavity, the absence of pelvic inflammation and of a leucocytosis. Sapremia of a mild grade may have been present in the first few days, but I think not.

When the worm was expelled the cause of the intestinal irritation was removed, and the fever, tenderness, and pain promptly passed away.

In the literature I find but one case in which worms complicated the puerperium, and in that one no mention was made of fever. This was reported by R. J. Polden¹: A Hindoo woman was admitted to the hospital in labor. She was emaciated and suffered from severe dysentery, which yielded to none of the usual methods of treatment. Three weeks after delivery she passed eighteen round worms, after which the dysenteric symptoms subsided.

Does the lumbricoid worm produce fever? Authors are divided upon this point. Our text books make no mention of it and devote a great deal of space to reflex symptoms, apparently ignoring the possibility of inflammation from its presence.

Dr. Osler says²: "The symptoms are supposed to be excited reflexly, or to be due to the virulence of the ascarides themselves. It does not seem to me a very clearly defined condition; and when one considers the extraordinary frequency of lumbricoid worms and the remarkable number which may be harbored without causing any special trouble, I think we require more evidence before we accept the conclusions of these authors" (Chauffard, Marie, Touchon).

Other authors, among them Chauffard,³ Marie,⁴ Touchon,⁵ Cesare Loi,⁶ Vermeulen (P.),⁷ Gould (S.),⁸ and Wrafter,⁹ hold the opinion that febrile symptoms do occasionally accompany infection with this parasite, and support it with histories of cases. I believe, from this evidence and my own case, we are justified in adding to the symptomatology of *Ascaris lumbricoides* the occasional manifestation of fever more or less continuous.

It might be well for the obstetrician to bear in mind this fact when an obscure fever occurs during the puerperium.

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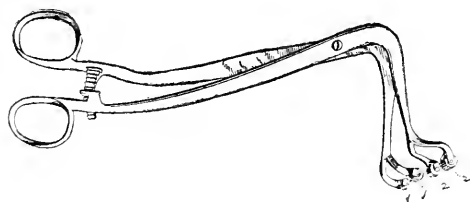
BILE-DUCT FORCEPS.

BY

JAMES F. W. ROSS, M.D.,
Toronto, Canada.

(With illustration.)

HAVING met with several cases of obstruction of the common bile duct by gallstone, and having experienced one great difficulty encountered during the performance of the operation for the relief of the patient, I decided to provide myself with an instrument that would obviate the difficulty by taking the place of the fingers of the left hand that become tired and cramped while holding the duct with its enclosed stone.



It was necessary that the instrument should fulfil several requirements. Firstly, it must not injure the delicate surrounding parts by pressure; secondly, it must keep the duct held forward, so as to insure the safety of the hepatic artery to its left and the portal vein behind it; thirdly, it must be so constructed as to permit of incision and resuturing of the duct.

The instrument in the accompanying diagram fulfils all these

conditions. It is now two years since it was made, and I have satisfied myself as to its efficiency.

Before the rollers have been closed about the duct containing the stone, the handles should be held upward, and, after the grasp has been taken, the handles are then placed so that they point downward toward the pubes: the elbow thus acts as the fulcrum of a lever and the tissues contained in the rollers are drawn away from the spine. In this way the parts are held well in view, and, while an assistant holds the liver up with a retractor, the weight of the handles of the instrument with the rollers is sufficient to keep up the action of the lever. It is now easy to place a running suture about the line of the intended incision into the duct; the incision is then made and the stone is lifted from its bed or, if very large, is needled and broken up. The purse-string suture is then drawn taut and the opening is closed, and the escape of bile, that otherwise would flood the field of operation, is prevented. A second supporting suture, of the mattress variety, is now placed and the forceps taken off.

The instrument was made for me by J. A. Stevens & Son, 145 Wellington street, West, Toronto.

CORRESPONDENCE.

TO THE EDITOR OF THE AMERICAN JOURNAL OF OBSTETRICS, ETC.

SIR.—Noticing in your October number, in the article of Dr. Frank A. Stahl, that but three cases—his making the fourth—of “repeated pregnancy in the same tube” had been recorded, I would like to report a fifth.

Mrs. L. in July, 1897, was taken with all the symptoms of ruptured extrauterine pregnancy—irregularity of menstruation, sudden severe pain, prostration, etc. Upon examination I found enlargement about the size of an egg in the left tube, with general fulness. As she objected to operation, and hemorrhage did not seem serious, she was treated expectantly and recovered, the fulness and enlargement slowly disappearing. The reason for the mildness of symptoms in this case will appear later.

In the early part of June, 1899, she again missed her period and I again detected enlargement of the tube. Toward the last of June pain and symptoms of rupture appeared, and she was

removed to the hospital, where I operated July 1, finding a partially ruptured tubal pregnancy near the middle of the left tube. At the fimbriated extremity of the same tube was an empty cavity, showing where there had been a tubal abortion into the abdominal cavity two years before. The first pregnancy occurring so near the fimbriated extremity accounted for the mildness of the symptoms and the ready recovery. She made an uninterrupted recovery from the operation, and in November, 1900, gave birth to a healthy child per vias naturales.

L. M. GATES, M.D.

BOARD OF TRADE BUILDING,

SCRANTON, PA., November 4, 1901.

TRANSACTIONS OF THE NEW YORK OBSTETRICAL SOCIETY.

Stated Meeting, October 8, 1901.

The President, H. J. BOLDT, M.D., in the Chair.

TUBAL GESTATION.

DR. EGBERT H. GRANDIN presented this case for the reasons: 1. That it was considered by a colleague to be an instance of hematosalpinx with partial rupture. 2. Because a superficial examination of the uterine scrapings suggested chorionic villi, so that if he—Dr. Grandin—was correct in his assumption, it might prove an instance of combined extra- and intrauterine gestation.

He had seen the case in consultation with Dr. Albert Kohn and had secured the following history. Amenorrhea of about six weeks' duration in a woman previously regular, although on occasions she had suffered from similar cessation of the menses without appreciable cause. She had had two attacks of abdominal pain, September 13 and 21 (never colicky), associated with spotting (not hemorrhage). Dr. Grandin had seen her on September 22, had ruled out uterine gestation, and, because of the presence of a small mass near the right broad ligament, had deemed the case suspicious enough to demand watching. She was removed to a hospital and examined under anesthesia by Drs. Jarman, Kohn, and himself, without positive diagnosis. On October 2 she had a sharp attack of abdominal pain with slight bloody show. The following morning he had curetted the uterus and obtained scrapings which Dr. Coe considered chorionic villi. Again no absolute diagnosis was reached, but Dr. Grandin opened the abdomen, found enough free blood to float,

and had removed the specimen presented. The pathologist would be asked to decide the disputed points.

MULTILOCULAR CYST OF THE KIDNEY.

DR. G. G. WARD, JR.—The specimen presented is one of multilocular cyst of the kidney, or, as it is called by some authorities, "large polycystic kidney." I removed it on June 1 last from a patient with the following history:

Mrs. H., aged 49. Family history showed the existence of carcinoma. She had had two children, youngest 22 years old, and one miscarriage a number of years ago. About four years ago the menstruation became profuse and appeared every three weeks. She had suffered with headache and backache with neurotic symptoms for years, for which she consulted me in the spring of 1900. At that time I found the uterus to be retroflexed and bound with adhesions, as were also the enlarged ovaries. I operated in May, 1900, removing both appendages and breaking up the adhesions; did a ventral fixation. When I had her under the anesthetic I discovered, on palpating the abdomen, the presence of a smooth, globular growth in the left hypochondriac region. The patient was very fat and it was difficult to palpate the growth with the abdomen relaxed. By passing my hand into the abdominal cavity to the region of the tumor, I was able to appreciate its cystic character and its mobility as well as its probable nephritic origin. At that time it felt as large as a small orange. I did not think best to remove it then, as the patient took the ether badly and I had not the necessary consent.

She made a prompt recovery from her laparotomy with complete relief from her backache and ovarian pain. I had her under close observation the following winter, and it was not until December, 1900, that she began to have any symptoms referable to the cyst. From that time the symptoms gradually increased, and they consisted principally of pain in the region of the stomach, rarely vomiting, but much nausea and severe headache. The neurasthenic symptoms were most pronounced, until she was almost bordering upon hysteria. Inability to digest food of any sort, the formation of gas, and a most obstinate constipation existed throughout. The bowels could only be moved with cathartics and repeated enemas. A marked pseudo-membranous colitis developed, in which large casts of the bowel were passed with nearly every stool. The tumor showed decided evidence of an increase in size, which progressed with the growth; occupied the eighth as well as the left hypochondriac and left lumbar regions. It was distinctly fluctuating and was becoming more fixed. Dr. Einhorn saw the case with me in consultation and advised that a nephrectomy be done as the only means of relieving the stomach symptoms, which were becoming alarming.

There was no evidence of enlargement or disease of the other

kidney, and the urine passed averaged thirty ounces daily. The urine was of low specific gravity, 1010, and no albumin, sugar, or casts, or evidence of cystitis. She was removed to the Post-Graduate Hospital and I operated on June 1, choosing the abdominal route on account of the size of the growth and its proximity to the abdominal wall. An incision six or seven inches long was made in the left hypochondriac region on the outer border of the uterus muscle. The growth was close against the abdominal wall, with the splenic flexure of the colon and omentum closely adherent to it. These were stripped away, and the capsule of the growth, which was the posterior peritoneum, was opened, and after considerable difficulty the whole mass was enucleated. The pedicle was ligated with chromic gut and the growth cut away, after which the individual vessels and ureter were ligated separately and the whole closed over with peritoneum. Time, one hour and twenty minutes. Rubber gloves used. Patient stood operation very well and was put to bed with pulse of 110.

She apparently made an uninterrupted recovery, her pulse gradually dropping to 86, and her highest temperature was $101\frac{1}{2}^{\circ}$, and after the 5th or 6th it was between 98° and 99° . She had no vomiting and the bowels moved readily. The abdominal wound healed by primary union.

She was out of bed on the fifteenth day. She continued to pass thirty to sixty ounces of urine; no albumin (after first week). She returned home on the twentieth day; temperature 99° and pulse 86.

For ten days she was about her room or in a chair, feeling that she was gradually regaining her strength and very cheerful over the outcome, when at the end of that time she had pain at the site of the operation and temperature of 100° to 101° . A thickening the size of a lemon could be made out at the kidney site and an abscess was suspected. She was at once returned to the hospital, twelve days after leaving it, and under anesthesia an incision was made to the left and parallel to the original incision, so as to enter the mass posterior to the peritoneum. A large, thick, plastic exudate was formed at the site of the kidney, and on reaching the centre three ounces of thick, purulent material were evacuated. The cavity was irrigated and drained with gauze. For a few days there was apparent improvement, with but very slight discharge from the wound, after which the temperature increased and it was thought advisable to enlarge the wound to permit of better drainage. This was done ten days after the first incision was made, and a free opening established, but without improvement. A few days later fecal matter appeared through the opening, and the condition of the patient gradually got worse until she died, fifty-six days after the original operation and thirty-five days after returning home as convalescing. There were no symptoms of uremia at any time, urine remaining normal. A postmortem examination

showed that there was an area of gangrene involving all that portion of the colon that was adjacent to the tumor, and which had been stripped off the growth during its enucleation. The other kidney was found to be in a normal condition. Multilocular cyst of the kidney is a rare disease. It is almost always bilateral. Dickinson found only 1 case in 26 in which it was unilateral, Ritchie 2 in 88, Lejars 1 in 62, while Henry Morris found 4 in 7 cases. The average age was 45 years. It is considered hereditary by some authorities, but not by others. Bar reports 3 cases in one family and Carl Beck found a similar case. Henry Morris has operated upon 5 cases (nephrectomy), and 2 were well seven years and three years after; this would apparently justify nephrectomy in these cases where the other kidney was found to be normal by palpation or inspection through the incision.

DR. H. J. BOLDT.—The statement made by Dr. Jarman regarding the incision used is of value; I think it is far more preferable to use that incision than to open the abdomen. I have had a number of solid tumors of the kidney to deal with, and I have had no trouble in removing them through such incision.

PLACENTA DUPLEX OR BILOBA.

DR. GEORGE L. BRODHEAD.—The specimen here presented is one of great interest and rarity because of the fact that what may be termed the supplementary placenta, measuring 15 x 9.5 centimetres, is of about the same size as the main placenta, which measures 14.5 x 11 centimetres, to the centre of which the cord is attached. There is a space of about five centimetres between the two placental masses, which are connected by chorion and three fetal vessels, one of which is of large size. The specimen was prepared by Dr. R. G. Tracy, and the sketch by Dr. R. H. Halsey, both members of the house staff of the New York Post-Graduate Hospital, in the service of which the specimen was obtained. The fetus depended fully as much upon one placenta as the other, and it is the most perfect specimen which I have ever seen. The one point of clinical importance to be remembered in connection with specimens of this nature is that the supplementary portion (usually called, when much smaller than the main placenta, placenta succenturiata) may remain in the uterus and give trouble, hence the necessity of careful inspection of the placenta immediately after its expulsion. If at the edge of the placenta, which seems to be complete, we find torn ends of vessels, we have good evidence that a portion of placenta has been left behind and can search for it at once.

THE MAMMARY CHANGES OF MENSTRUATION.

DR. J. CLIFTON EDGAR.—I desire to present to the Society this evening an oil reproduction from nature of the mammary changes produced incident to the menstrual epoch. The paint-

ing in question is not a selected one nor an unusual one, and is taken from one out of a number of cases seen during the past ten years in 600 consecutive examinations for evidences of rape. Both in medico-legal cases and also in the diagnosis of pregnancy in private practice have I been impressed with the analogy between the changes in the nipple, primary areola, veins, and Montgomery's tubercles in the menstruating and the pregnant condition, the latter being limited to the first three months. In the illustration I desire to draw attention to the prominent veins, the darkening and edema of the areola, the erection and congested nipple, and the fact that a slight serous, yellowish discharge caused dry scales to form in the orifices of the milk ducts. My observations in the above cases and from records kept on the subject in private practice lead me to conclude that the illustration is not an exceptional one by any means, and the condition, especially among the upper classes in nulliparous women, is rather the rule than the exception; further, that very often the mammary changes of the first third of gestation cannot be distinguished from those occurring in the premenstrual period of congestion; that, in fact, the mammary changes of early gestation are valueless even for an uncertain diagnosis of pregnancy.

DR. E. H. GRANDIN.—I think the mammary signs during the earlier months of pregnancy have had more stress laid upon them than they deserve. I can recall distinctly a woman with double ovarian disease who had as marked mammary signs as ever were seen in a nullipara. I think the point made by Dr. Edgar is worthy of record. Of course it is understood that in any event these figures are only of value when taken in connection with other figures of pregnancy.

DR. H. N. VINEBERG.—I should like to ask Dr. Edgar if his observations extended to girls at other periods than puberty; whether he had noted changes in older girls; how long those changes continued; whether they disappeared rapidly or if they lasted for some time; whether these were original investigations, or had they been made before.

DR. CHARLES JEWETT.—I have been accustomed to attach some diagnostic importance to the mammary changes in first pregnancies in the absence of pelvic disease. The fact that mammary changes counterfeiting pregnancy are present, as Dr. Edgar finds, at the outset of menstruation, does not wholly destroy the value of these signs as evidences of pregnancy. Approaching menstruation, as well as pelvic disease, must be excluded, and the other early signs, nausea and a skipped period or two, must be considered.

The question raised by Dr. Edgar recalls a case which I saw within a week or two. The subject had been exhibited as a pseudo-hermaphrodite. It was one rather of arrested development of the genitals in a male. The penis was very small and there were rudimentary testicles in the scrotum. There were

no vagina, no external female genital organs, nor ovaries. The man, who was about six feet tall, was beardless; his breasts were large and as pendulous as those of a woman who had borne children; the areolæ were pigmented. The abdomen was pendulous and was marked with lineæ albicantes which extended down over the upper portion of the thighs.

DR. J. C. EDGAR.—My attention was first drawn to this subject more particularly eight or ten years ago, when I began a series of 600 consecutive examinations for evidences of rape, and since then I have been impressed with the fact that, in the absence of uterine disease, the mammary changes at or about the menstrual period are practically the same as occur in the first third of gestation. Since that time I have kept record of every case, even those who are advanced in years. I am convinced, so far as I have gone, that these changes are quite common. It is rather the rule than the exception, particularly amongst the upper classes, to find changes in the mammary glands seventy-two or forty-eight hours before the expected menstrual epoch, such as is represented in the colored painting presented to the Society. In this particular case I have the complete history; there was no ovarian irritation, and she was examined by my colleague as well as by me. I have, too, a series of photographs where the tubercles of Montgomery show out prominently before menstruation and disappear about the second or third day of the menstrual epoch. I consider it a very common condition indeed. I think the importance attached to the mammary changes is rather valueless in early gestation.

DR. LE ROY BROUN read the paper of the evening, on

A COMPARATIVE STUDY OF THE IMMEDIATE RECOVERY OF PATIENTS FOLLOWING VAGINAL AND TOTAL ABDOMINAL AND SUPRA-VAGINAL HYSTERECTOMIES, INVOLVING IN ALL ONE HUNDRED AND THIRTY CASES.¹

DR. B. McE. EMMET.—Dr. Broun has so ably shown the *pros* and *cons* in his paper of the evening that I am forced to the opinion that we cannot have any fixed rule in dealing with these cases, although we may, of course, have preferences. But day after day and month after month we have thought that our views were well established and yet new experiences displace them from time to time. Certainly, during the last two years or so, there has been a marked tendency to adopt the inferior route, Baldy, of Philadelphia, being alone, I believe, in persistently advocating the suprapubic route as a general method for all classes of work, and I am much inclined to side with him in the larger number of cases. Surely, every one with the required skill may find points to favor the adoption of the vaginal route, notably the absence of scar and the perfect possible drainage; still, in choosing the upper route one is the better able to cope with the innumerable difficulties which constantly present themselves,

¹ See original article, p. 792.

and doubtless each one of us can recall cases in which he has had reason to congratulate himself that his work was within sight and not subject to touch alone. The dense adhesions of tubes and ovaries are oftentimes most difficult to break up, and frequently it is utterly impossible to remove the appendages and broken-down lymph completely. Furthermore, our suprapubic work constantly reveals to us adhesions to intestines and other complications which, we quickly recognize, would very seriously imperil the life of our patient were it impossible to deal with them by the lower route. On the other hand, we observe, when working from above, that the peritoneum is often much injured from torn adhesions, with resulting bare surfaces, possibly infected by escaping pus, and we realize that we cannot drain as well from above as we should. This is always a serious thing, and we may wish that we had chosen to work from below, though we may still wash and drain by the posterior puncture. Such conditions would establish the lower as the better route when we must remove débris, clots, etc., which our work has entailed, as we can cope with them more satisfactorily by free downhill drainage. Whatever method or technique we use, it must always be dictated by a more thorough physical examination and the preference established by a judicious balancing of existing conditions. A point not mentioned in the paper, but possibly overlooked, refers to the thorough disinfection of the uterine canal before and after the operation by curetting, then by the use of carbolic acid and the use of the thermo-cautery after the excision of the tumor or growth of the uterus, or of a transverse section for whatever purpose. I believe that this should be done always. It is, I know, neglected in some cases, and it proves a fruitful source of sepsis. I never establish drainage from the peritoneal cavity through the remnant of uterus and cervical canal after a supravaginal hysterectomy. I always stitch the peritoneum over the surface of the stump. Such attempts at drainage would prove useless, as I still utilize the remaining portion of tubes stitched in with the stump of uterus to raise it well off the floor of the pelvis, in view of the ultimate sense of support; therefore no material which might drain from a lower plane could reach my gauze.

DR. H. N. VINEBERG.—There are a few things that have struck me as being of particular interest in the paper presented by Dr. Brown, especially the actual results obtained. The first thing that occurred to me as being rather peculiar was that the cases of vaginal hysterectomy in which the clamps were used recorded the same temperature curves as were recorded by the cases of abdominal hysterectomy. In my own experience it has been just the opposite. In abdominal hysterectomy it is usual to have some temperature for the first two or three days; but in vaginal hysterectomy where more than one clamp has been used, there may be absence of fever for the first four or five days, but after that we are certain to have some temperature produced by a

certain amount of sloughing that ensues. One may possess a greater amount of skill in performing the operation, yet no amount of skill can prevent the sloughing when the clamps are applied; the more clamps that are applied the more sloughing will ensue and the longer will the fever continue. The temperature runs for five, six, seven, or even ten days until all of the sloughs come away. Other than this febrile disturbance I have never observed any ill effects from the clamps.

Another point the doctor made in his paper did not seem to me to be a logical one, *i.e.*, the differences in the results obtained in the cases of supravaginal amputation and of total hysterectomy. To my mind the different results obtained in those cases of supravaginal hysterectomy were not because drainage was instituted, as the author has asserted, but because it was ineffectual and incomplete; the small canal did not allow the fluid and secretions which bathed the raw surfaces to pass out and escape through the cervical opening. The cases of abdominal total hysterectomy and vaginal hysterectomy could not be cited as cases in which no drainage was employed, for the peritoneal cavity was left open and gauze packing used, the ends of which lay in the vagina. I would therefore consider these cases as those in which drainage of the freest kind had been used, in contradistinction to the cases of supravaginal hysterectomy in which imperfect drainage was used.

I should like to ask the doctor if the cases operated upon by the vaginal or abdominal route were selected cases.

DR. LE ROY BROUX (closing the discussion).—What I tried to emphasize in my paper was that if we were going to drain we must remove the cervix, in order to have a complete and thorough drainage. In supravaginal hysterectomy it is better not to drain, but to close the cervix. If the vagina is already sterile at the commencement of the operation, bloody serum oozing through the cervix over the vulva will not permit it to remain sterile.

So far as attempts at sterilizing the canal and stump were concerned, I purposely left out remarks upon this, because the results of Miller's bacteriological examinations brought out the fact that in 44 cases after hysterectomies the examination of the uterine contents showed *all* to be sterile. If the inside of the stump is cauterized or touched with strong carbolic acid, it is not likely that primary union will take place between such treated surfaces when closed. The better way would be to wipe out the cervical canal of its sterile secretions and close it together with catgut sutures.

So far as the use of the clamp and the sloughing were concerned, that has been thrashed out years ago. By clamps we get an *early* sloughing in a space shut off from the general cavity by gauze. I think it is a better method than to use the ligature, because in the latter we are apt to get secondary *late* infection. That is why the clamp has been used in the place of the ligature.

The sloughing of the portion between the jaws of the clamp has not given any rise of temperature in our hands.

In reference to the question asked by Dr. Vineberg regarding the selection of cases for the different kinds of operations, I would say that supravaginal hysterectomy was only employed by us for fibromatous uteri, or in pus cases in which there was every evidence that the pus was sterile and in which no necrotic portions were left behind. Total hysterectomy was done always in the more desperate cases and in which a large and raw surface was exposed. Vaginal hysterectomy has been done largely as a matter of preference in instances when conservatism could not be exercised and when it was thought that the removal could be accomplished with as much safety as by the abdomen.

DR. J. E. JANVRIN.—In these cases of vaginal hysterectomy were the clamps used and the angiotribe not used?

DR. BROUX.—The angiotribe was used on the uterine artery. Probably in four or five out of the 36 cases the angiotribe was used on both uterine and ovarian. When first we began its use hemostasis of both uterine and ovarian was accomplished by it. Later, on account of the retraction of the broad ligament and some oozing following, its use on the ovarian was abandoned and a return to clamps was made for the ovarian. In all cases of vaginal hysterectomy we now use it on the uterine.

DR. JANVRIN.—During the past year I have been infatuated with the use of the angiotribe.

TRANSACTIONS OF THE CHICAGO GYNECOLOGICAL SOCIETY.

Meeting of September 20, 1901.

LESTER E. FRANKENTHAL, M.D., *in the Chair.*

PROLAPSE OF THE GENITALS FROM A LARGE CYST.

DR. LESTER E. FRANKENTHAL.—You will remember that at the last meeting I wished to exhibit a large ovarian cyst which produced a complete prolapse of the genitals. There was no other apparent cause for the prolapse. The tumor was removed by the abdomen. The uterus with pedicle was fixed into the abdominal wound, and in that way an attempt made to cure the prolapse. That evening Dr. Webster was kind enough to relate another cause of prolapse, and I trust he will favor us to-night with a few words on the subject.

PROLAPSE OF THE PELVIC ORGANS DUE TO ASCITES.

DR. J. CLARENCE WEBSTER.—I recall a case of abdominal malignancy which was under my care in the Presbyterian Hospital.

A swelling larger than a fetal head protruded from the vulva, consisting of bladder, uterus, and vaginal walls. The protrusion was caused by a large accumulation of ascitic fluid in the peritoneal cavity. After tapping of the abdomen the prolapsed pelvic floor was easily restored to its normal position. As the ascitic fluid reaccumulated, the vulvar swelling again became manifest.

FACE PRESENTATION.

DR. LESTER E. FRANKENTHAL.—I desire to report a case of face presentation which, by means of the Thorn method, was converted into a head presentation. I was called to see the woman after the os was fairly well dilated. You will remember that the Thorn method consists of using the fingers of one hand in the genitalia, gradually working the head around until the large fontanelle passes it, until you get the small fontanelle engaged, having an assistant throw the breech in the opposite direction to which you are working, and you yourself converting the lordosed spine into a kyphosed spine by traction on the shoulders. The head engaged. I put on a tight compression bandage, with two pads on either side to keep the head fixed, and the delivery was an absolutely normal one. It is the first opportunity I have had of using this method, of which I had read quite a number of years ago, and of which there is again recently an article in the *Archives of Gynecology*. The reason why I applied the binder is because the woman had a pendulous abdomen, and in my experience the head frequently returns to the abnormal position, in fact many times disengages entirely, in these cases of pendulous abdomen, unless the abdomen is held up firmly after correcting the abnormal presentation.

OBSTETRICAL CASE.

DR. J. CLARENCE WEBSTER.—It might be interesting to the Fellows to refer to a case that I was fortunate to see this summer when I was away on a vacation. The patient was a French woman. Her husband came to me about 11 o'clock at night with a message from the family physician stating that the woman was dying. I went to the house and found a priest giving her absolution. The woman had no pulse at the wrist whatever, and she manifested all the symptoms of acute anemia. The bed contained a large quantity of blood. I examined her as soon as the priest left the room and found the cervix dilated to about the size of a fifty-cent piece. The case was one of marginal placenta previa. The physician stated that the membranes had ruptured just before my arrival. He had no obstetric bag nor apparatus of any kind. I found an old syringe in the kitchen, with which I injected about two quarts of hot salt solution into her rectum, having gotten the husband to raise the bed two feet at its lower end. The pulse returned to the wrist in a short time after the administration of the hot salt solution. I then proceeded to dilate the cervix with my fingers and attempted to

perform version. I failed in my effort because of the opposition on the part of the patient. I then continued to dilate the cervix. At the same time I pressed the fundus of the uterus firmly downward. There was practically no bleeding from the moment pressure was made on the fundus. By means of that pressure the head was gradually forced right down through the cervix into the pelvis. Some pains came on, but they did not amount to much. I also assisted the progress of the head with the hand which was in the vagina; the head was not large, and I was able to grasp it. Dilatation and delivery were effected inside of half an hour. I delivered the placenta manually, and plugged the cervix and vagina firmly with a piece of boiled sheeting. The patient made a good recovery.

DR. CHARLES S. BACON.—I have used the Thorn method a number of times, and have always regarded it as the way to manage all cases of face presentation, unless one has reason to believe, from the relatively small size of the head and the progress of labor, that it is not necessary, or unless the face is very far down. The fixing of the head I have done after the turning by pressing the head down into the pelvis. Pressure of the head into the pelvis will prevent the reassuming of the abnormal position; compressing the abdomen is unnecessary.

To cap Dr. Webster's story of the wilds of Nova Scotia, I might relate a case that occurred in the wilds of Chicago. A woman, in labor with a face presentation, was attended by a midwife, and then by a physician who graduated in this city, and finally by a second physician who was a teacher in a Chicago medical school. These two physicians had this poor woman under the influence of chloroform for about four hours, trying to deliver the child with forceps. The face was not far down, and they absolutely failed. After the patient was brought to the hospital it was found an easy matter to rectify the position of the child by the Thorn method, and then delivery was quickly accomplished. The skin was almost entirely pulled off from the face. The child was still alive and lived about twenty-four hours.

DR. JOSEPH B. DE LEE.—With reference to changing a face presentation to an occipital, I might mention the fact that I have very recently succeeded, by external and internal manipulations, in delivering two women in whom the position was occipito-posterior. The use of forceps was indicated in a case of occipito-posterior position in a primipara 28 years of age, but I was unable to deliver either in bringing the occiput to the front or in aiding rotation toward the sacrum. I removed the forceps and tried manual correction of the position. I succeeded beyond expectations in forcing the head into the transverse diameter; then tried to apply the forceps again, but the head slipped back into the posterior position. When I pulled the shoulder to the front the head would remain in the transverse diameter. Under deep anesthesia I brought the shoulder to the right anterior quadrant. After making an examination I found the

occiput in R. O. A. I applied the forceps and delivered a living child. This is the first time to my knowledge that any one has emphasized the importance of pulling the shoulders to the front to aid internal manipulations in posterior positions.

DR. WEBSTER.—Where was the head?

DR. DE LEE.—The head was fully engaged in the pelvis. The baby weighed eight and three-quarter pounds. The pelvis was not large, but normal. It was absolutely impossible to deliver the baby with forceps by rotating to the front or behind.

DR. BACON.—Did you use axis-traction forceps?

DR. DE LEE.—No. The head was low in the pelvis.

DR. GUSTAV KOLASCHER.—I wish to say, in regard to the report of Dr. De Lee, that trying to correct presentations by means of rotating the head with the forceps is a very dangerous practice. This holds good particularly in cases of abnormal rotation. If we try to change the presentation of a head by rotatory movements of the forceps we are apt to tear off the vagina from its junction to the uterus. If an abnormal rotation is fully developed—that is, that the occiput of a child points toward the sacrum—it is necessary that the back of the child points at least with three-quarters toward the sacrum. It seems to me that if we would try to rotate the whole child by means of the forceps we are almost sure to break the child's neck, not to speak of the impossibility of reversing a fetal head which is already fully engaged for one hundred and eighty degrees.

DR. DE LEE.—It is not impossible at all. The French obstetricians are doing it every day. It is not very difficult if we correct the presentation. The face has to be moved. If the head is low down it may be difficult or impossible to rotate it any more. The forceps is engaged when the head is engaged, not before.

DR. RUDOLPH W. HOLMES.—To illustrate that it is possible for a baby's head to rotate practically in a half-circle, I will cite a case I had where the occiput came out anteriorly, although primarily it was a right posterior position. External restitution carried the occiput almost directly posterior before the shoulders rotated.

DR. DE LEE.—You can rotate a baby's head one hundred and eighty degrees without injuring it.

DR. CHARLES S. BACON.—The method of rotating the head with or without rotation of the body has been practised since the time of Smellie, who mentioned two or three cases where he changed an occipito-posterior to an occipito-anterior position by rotation, and, if I remember rightly, in one case he failed to effect rotation. It has never been quite clear to me why we cannot succeed in converting an occipito-posterior position into an occipito-anterior. I have tried to do this two or three times and have failed, and the reason why one can succeed in some cases and not in others I do not know. In explanation of my question concerning the use of axis-traction forceps in occipito-posterior presentations, I may say that I have had this experi-

ence twice: I have put on the ordinary Naegeli forceps in a case of occipito-posterior position and have failed to move the head: then by applying Tarnier's forceps I have succeeded with comparative ease in delivering the head occipito-posteriorly. I have never attempted to rotate the head with forceps, because it has seemed to me bad practice to do so. I was surprised to read last spring the report of a discussion before a New York medical society in which quite a number took part who favored the use of forceps as rotators of the head.

DR. J. CLARENCE WEBSTER.—The cases of Smellie, to which Dr. Bacon has referred, were cases in which the head was in the pelvic cavity. I have never heard of any one trying to rotate a head, just engaged in the brim, by means of forceps. It seems to me that would be a dangerous proceeding.

DR. GUSTAV KOLISCHER.—This diversity of opinion is based, as a rule, on the fact that very often oblique or transverse presentations of the skull which develop subsequent to an anterior vertex presentation are mistaken for complete abnormal rotation.

DR. RUDOLPH W. HOLMES read an inaugural thesis entitled

ABLATIO PLACENTÆ.¹

DR. JOSEPH B. DE LEE, in opening the discussion, read the report of a case of

PREMATURE DETACHMENT OF THE PLACENTA IN A HEMOPHILIC WITH FATAL HEMORRHAGE.²

DR. J. CLARENCE WEBSTER.—I wish to express my appreciation of the contribution that Dr. Holmes has given us. One realizes what an immense amount of reading he must have done in order to prepare this paper. There are too many points in it to be discussed in the short time at our disposal. I suppose we know little about the subject from personal experience, because true ablatio placentæ is very rare. It happens that I was very much interested a few years ago in making observations with reference to the frequency of accidental hemorrhage, so-called. I have seen only two cases of true accidental hemorrhage, and both were of the same nature. Two women in advanced pregnancy were kicked by their husbands and had accidental hemorrhage. They were treated in maternity practice. In one case a prominent feature was the formation of a rounded swelling on the anterior uterine wall. There was marked collapse. The other case had no such swelling: there was general indefinite distress, but there was also marked collapse. Both patients were treated in the same manner—immediate rupture of the membranes, with dilatation and delivery. Those are the only two cases I have seen in which it could be definitely stated that the placenta was situated above the lower uterine segment.

A number of cases of bleeding were carefully studied from

¹ See original article, p. 753.

² See original article, p. 785.

the point of view of attachment of the placenta, and in all of them I was convinced that the placenta was previal. Not in all cases was the edge of the placenta near the os, but certainly below the upper uterine segment, and so coming under the category of placenta previa. Dr. Holmes has criticised several papers from that point of view, and has therein done an important service, for there can be no doubt that there has been much carelessness in the investigation of the placenta and membranes with reference to their relationship to the uterus in cases of hemorrhage. I am interested in this subject because I have studied some very interesting postmortem cases of placenta previa. Ever since I became familiar with Hofmeier's and Kaltenbach's work I have made a careful study of abortions and miscarriages, and I am convinced that one of the important causes of abortion and miscarriage is a previal condition of the placenta. This is not generally recognized by the general profession and by text-book writers. I have two interesting specimens at Rush College now which I studied by frozen sections. In those cases, in which pregnancy had advanced about three months, there is a beautiful illustration of the previal state. Abortions and miscarriages are not examined carefully with reference to the situation and extent of chorionic development. I think it would be important if all complete abortions were carefully studied.

It is very hard to be convinced, with reference to any special method of treatment, from the statistics given, but in the main I am inclined to agree with the essayist. The tampon treatment is most pernicious and has no scientific basis whatever, although it may have in a certain class of cases of placenta previa.

I had never before thought of the question the essayist has raised regarding rupture of the membranes. The tendency of the Edinburgh school is to consider rupture of the membranes as of prime importance in cases of accidental hemorrhage. Dr. Holmes' criticisms of that method I think are worthy of a good deal of consideration.

I have no doubt a lot of the statistics regarding the frequency of placental hemorrhage in pregnancy are based upon wrong pathology. It is only recently that we have become acquainted with the true nature of infarcts, so-called, in the placenta. True hemorrhage in the placenta in pregnancy is one of the rarest conditions met with, and the infarcts, whether large or small, which are so frequently found in the placenta, are due to a process which primarily begins in the fetal structures, viz., thickening of the intima in the vessels of the villi and in the connective tissue around them, followed by a process of coagulation necrosis extending outward, with clotting of the maternal blood. This condition is found in every placenta to a certain extent and must be regarded as a senile change. When the infarcts are large they are most apt to be described as hemorrhages. True hemorrhages must be considered as very rare.

DR. CHARLES S. BACON.—An extremely interesting question

has been brought up by this paper, namely, the etiology of the condition, and the possible bearing of endometritis on the subject. The question has occurred to me whether the changes in the blood were not really more important than the changes in the endometrium. The common statement made at the present time, that endometritis is the chief etiological factor, is, without further elucidation, hardly an explanation; and since a change in the blood will produce a hemorrhagic condition, it seems more likely to be a theory that will better account for the facts. I believe Dr. De Lee's position, that there is a temporary hemorrhagic condition produced by various causes, is absolutely upheld by the facts that we have learned, not only in obstetrics, but in our gynecological practice.

The second case Dr. De Lee reported is one that I am particularly interested in, as I had charge of the case. Since the report as given by him is correct, it does not need any further elucidation. Since that time I have looked back to some cases in the past that have been somewhat similar, and I have had my attention called to other cases since then that I would like to report. However, I will only mention briefly one case that I had to do with last spring.

A woman, who had frequent and free uterine hemorrhages, had been curetted once without much relief, and she came to me partly because of the hemorrhages and partly because of her sterility. Upon examination I found a polypus which was attached above the internal os. The patient was anesthetized, the polypus removed as thoroughly as possible, and curetting done. After the operation, although it was a minor one, she did poorly, and a more careful examination of the general condition showed a much-enlarged liver which I had in some way overlooked before, or maybe it was not present before. The patient began bleeding almost before she was out of bed. Afterward she came to the office, and, in order to determine whether the slight hemorrhages she had possibly proceeded from the polypus reappearing, I inserted a vaginal speculum, took hold of the os with forceps, and found no evidence of recurrence of the polypus, but that slight manipulation brought on a hemorrhage which was sufficiently severe to keep the woman in bed for two or three days. The patient was put on general treatment; she was sent away to the seacoast, and after a two weeks' outing she returned much better. She is now in good condition, and I think I shall let her alone. I believe we are agreed that there are a great many gynecological cases of hemorrhage from the uterus, where there is no apparent pathological lesion, where we curette and find nothing in the scrapings to account for the hemorrhage, and we must sometimes, at least, admit a pathological condition of the blood. It is a question whether the frequent association of abortion and premature separation is not partially explained by the effect of the kidney lesion on the composition of the blood.

There is one point in regard to the treatment that I would like to bring out which has not been referred to. In the serious cases,

where the necessity of immediate delivery is apparent, as in the case reported by Dr. De Lee, and in others found in the literature where the cervix has not yet opened, it would seem that vaginal hysterotomy or vaginal section of the uterus is an ideal operation. This operation, proposed and first carried out by Dührssen, would be the surgical way of managing these cases in opposition to the slow and extremely laborious dilatation. The operation itself would be very much shorter, and consequently attended with much less shock, and, if properly performed, would not be more dangerous on account of hemorrhage. The operation would consist of an anterior incision in the uterus, extraction of the child, and then sewing up the uterus according to the technique recommended by Dührssen. I am somewhat surprised that that method was not alluded to by the essayist.

DR. GUSTAV KOLISCHER.—Referring to Dr. De Lee's cases, the explanation he offers is very plausible. We all have seen cases of atheromatous degeneration of the uterine arteries, so that it is next to impossible to stop a hemorrhage by mechanical means, and the suggestion of Dr. De Lee to use gelatin is a good one.

So far as diagnosis of concealed hemorrhage is concerned, I would call attention to the point that the diagnosis can be made, as is shown by the reported case in which Dr. De Lee made the diagnosis before operating. If we notice signs of internal hemorrhage in the mother, and at the same time, by watching the fetal heart, observe that the pulse rate rises rapidly, then slows down very quickly, and after a while the pulse disappears entirely, we are justified in making the diagnosis of a retroplacental hemorrhage; the treatment, of course, is to empty the uterus as quickly as possible.

With reference to giving hypodermatic or intravenous saline solutions before the hemorrhage is checked, I think it is a mistake. The injection of saline solution should never be started with before the hemorrhage is arrested, or when we can expect to check it in a very short time.

Giving ergot before the uterus is emptied is another dangerous mode of practice, because we might evoke tetanus uteri and thus impair the chances of emptying the uterus quickly. Vaginal Cesarean section is always a very bloody operation, so that I do not think it should be resorted to in these cases which are at issue now.

With reference to the new term suggested by Dr. Holmes for premature detachment of the placenta, I do not think it is etymologically correct. Ablation always means the artificial removal of some part of the body by surgical interference. In fact, the term ablation is almost equivalent to the word amputation, and is always used in such sense in surgical language. I do not think that this term proposed by Dr. Holmes will be generally accepted.

DR. JOSEPH B. DE LEE.—One point with reference to the use of normal salt solution in cases of hemorrhage. In a case of extrauterine pregnancy in which there are arteries spurting, per-

haps the administration of normal salt solution will furnish enough blood to wash out a tender clot forming in the end of one of the arteries. But in a case in which a woman is suffering from the effects of loss of blood and is yet losing blood, we have not alone to get things ready and stop the loss of blood, but we must not let the woman die while doing it. If we fill her blood vessels with normal salt solution, we may slightly increase the hemorrhage, that is, increase the total amount of fluid lost. It must be remembered, however, that she is not losing pure blood, but blood mixed with salt solution. If we put in two quarts of salt solution where a woman has lost one quart of blood, she can safely lose another quart of fluid, for she then only loses a pint of blood, so to speak. I have always claimed and have taught that in a case of hemorrhage, hardly with the exception of intra-abdominal hemorrhages where it takes time to arrest the bleeding, it is better to inject salt solution and hasten preparations. The blood lost is mixed with salt solution.

One other point in the doctor's paper that possibly is not very important, but still interesting, is the mental effect upon the production of premature detachment of the placenta. A week ago to-day on Wentworth avenue an accident happened. A big butcher ran after a boy about 6 years of age, in a playful sort of way. The mother saw it and was immediately stricken with great anxiety. She was nearly nine months advanced in pregnancy, and the baby, which she had felt right along, ceased moving. She was delivered of a stillbirth child, macerated. She had a postpartum hemorrhage. Her uterus was full of tough clots. This woman had likewise a bleeding tendency. I packed her uterus at once with gelatin gauze.

At the college we had a woman under the amphitheatre awaiting confinement. The students one day began to "pass each other up," and, as the woman was about to be confined, she was much wrought up over the noise and complained of pain, but did not go in labor. Three weeks afterward delivery was effected before the class, and an old clot the size of a hen's egg was found. There are other possibilities that cannot be denied. These two cases make me believe that there is a mental effect which produces placental disturbance.

DR. WEBSTER.—Apoplexy, so to speak, in the placenta is not so rare. I have seen two cases where the hemorrhage was in the placenta.

DR. DE LEE.—The case I reported had a hemorrhage in the placenta; it was in the chorion frondosum under the closing plate of Winckler, and I could dissect it out. Then I had a case that had six or seven hemorrhages in the placenta, some of which had become cystic.

DR. WEBSTER.—With reference to the occurrence of infarcts, the mere fact that the naked eye may determine a small mass of blood does not prove that there is coagulation necrosis present.

DR. DE LEE.—These were distinct clots.

DR. WEBSTER.—There may be hemorrhages with coagulation

necrosis, due to changes going on in the fetal structures. But the microscope shows that it is not a hemorrhage into the placenta.

DR. LESTER E. FRANKENTHAL.—I have seen a case in the last year, examined with rubber gloves, in which, after the rupture of the membranes, which I had made myself, there was considerable hemorrhage. I could not detect any placenta. The hemorrhage was checked at once by the head coming down and plugging the outlet. The hemorrhage was easily explained as coming from one of the vessels of a velamental insertion of the cord during rupture of the bag of waters. I therefore should like to have the doctor add this source of hemorrhage to the ones enumerated by him.

I have had experience with the use of normal salt solution under all possible conditions and circumstances. One of the saddest experiences I had was in the case of typhoid fever where there were many profuse hemorrhages. The hemorrhages recurred several days in succession. While it appeared to be a foolish thing to do, I at last gave salt solution, which I believe hastened the death of the patient. Normal salt solution in a case of placenta previa, where we can control hemorrhage, as in Dr. Webster's case, by manipulation, by turning, or by plugging with tampons, appeals to me, but in a case like the one under discussion to-night I should seriously object to the salt solution being given to one of my patients at the time at which it was given in his case, before delivery, while hemorrhage was going on. I do not wish to be understood as criticising Dr. De Lee. I can easily imagine how a man will be moved to do almost anything when hemorrhage occurs in a case in private practice, with no assistance, and many times not the necessary paraphernalia on hand for life-saving measures; but the use of salt solution does not appeal to me as logical under this circumstance. I shall never transfuse unless I can control the bleeding vessel at the same time.

DR. HOLMES (closing the discussion).—I regret that the Fellows did not follow Dr. Kolischer in discussing the new term, "ablatio placenta," for it seems to me we should have a shorter term than now in use to designate detachment of the placenta from its normal site. In reading old text books one can but be thankful that the verbose names for attachment of the placenta to the lower segment have been superseded by "placenta previa." If my recollection is correct, placenta previa was qualified by one or more additional words when first used to clearly express the condition; by general acceptance the two words have been generally held to be sufficient. In the same manner ablatio placenta by general consent may be restricted to mean premature detachment of the normally situated placenta. Dr. Kolischer is wrong in believing ablatio (from *aufsero*) is limited to methods of separation by external means, as, for instance, a surgical ablation of a leg. It means primarily a separation, division, etc. The general term for detachment of the retina is "ablatio

retinae"; the retinal detachment may be brought about by a blow on the head or an injury to the eye, but is almost always due to disease. I grant that the terms *ablatio placenta* or *placenta ablata* are not all that could be desired, nevertheless we ought to have some term in use for premature detachment of the normally situated placenta rather than the long term we now employ, especially as accidental hemorrhage should be held obsolete.

Dr. De Lee stole my thunder in refuting that the patient's life would be jeopardized by the use of normal salt solution during active hemorrhage. If the salt solution is given, the patient, as he has stated, will bleed diluted blood, and the patient is less likely to die when the solution is judiciously used; strictly speaking, a person does not bleed to death, but loses so much blood that her vessels lose tone, and, so to speak, bleeds into her veins. To permit the heart to act properly, Dawbarn, of New York, has suggested, with right, that twice the estimated blood loss should be injected to overcome this atony of the veins.

With reference to determining when the circulation is being cut off by separation of the placenta from the increased rapidity and subsequent cessation of the fetal heart, I am sorry I did not study that point more thoroughly. But my recollection is that in the two hundred cases it was exceedingly rare that the attendant found the baby dying. The babies died before the arrival of the doctors. The baby dies as the result of separation of the placenta, and that occurs usually before the attendant appears.

I did not mention Dührssen's operation. It is just the same as Cesarean section. It only is suitable for a hospital, and most of these cases occur in private practice; very few are sent to the hospital, and it would be as difficult to do Dührssen's vaginal section as to do a straight Cesarean section.

I agree with Dr. De Lee that physical effects do play a causal part in these cases, but not to the extent currently believed.

TRANSACTIONS OF THE WASHINGTON OBSTETRICAL AND GYNECOLOGICAL SOCIETY.

Meeting of November 18, 1900.

The President, S. S. ADAMS, M.D., in the Chair.

DR. W. S. BOWEN read the paper, entitled

CONSIDERATIONS REGARDING THE BEST METHODS OF CONDUCTING
PRIVATE OBSTETRIC WORK.¹

DR. H. D. FRY.—There is a great difference between the obstetric practice of the present and that in vogue fifteen years ago

¹ See original article, p. 824.

when all these things were neglected. Now the *people* are beginning to appreciate and want all precautions taken. We have been in the habit of *telling* the patient what she should do by way of preparation, but it is a good rule to have the instructions printed and have the copy returned after labor. The nurse, too, should be instructed in our peculiar methods. In regard to hemorrhage, he had seen women delivered with no effort on the part of the practitioner to follow down the uterus with the hand. In deaths from childbirth in the District of Columbia hemorrhage takes the third place. The nurse should be told how to tell concealed hemorrhage by the pulse and what to do in the absence of the physician.

DR. H. L. E. JOHNSON said the idea of printed rules for the patient and nurse was good. In regard to methods of sterilizing, it does not make much difference which one we use; some one is essential. He did not like rubber gloves; he cannot recognize fine distinctions with gloves, and there is just as much danger in making an examination with a dirty glove as with a dirty hand. If they are to take the place of sterile hands he would condemn them.

DR. W. M. SPRIGG said the hands are to be made sterile, but we cannot be so sure of them as we can of the gloves. He was able to deliver a case with safety, while suffering with an infected hand, by the use of gloves.

DR. E. E. BALLOCH said if the patient cannot provide all the essentials she can have the most important. We should have an ideal and get as near to it as possible. A glass catheter is better than a soft rubber, being more easily sterilized.

DR. J. WESLEY BOVÉE said the rules of the paper should be followed in all cases, but we should be careful that we do not give the patient the impression that labor is not a normal process by presenting her with so many rules. Very few things are needed in the obstetric room. He saw no necessity for the nurse to have sterile hands; he would want the nurse to hand him anything he might want. He used gloves; he cannot trust his hands. Just as few examinations as possible should be made and the labia should be held well apart. The idea that tactile sensibility is lessened by gloves is overrated, and good gloves do not break. Gloves are easily made sterile by a one per cent solution of tricresol. He sees very little postpartum hemorrhage in private practice.

DR. W. S. BOWEN said the things he asked for did not cost more than two dollars and he had never found the poorest to object. The things he provided are only those we may need in any obstetric case, and we have no right to call on any one else for them.

Meeting of December 21, 1900.

The President, S. S. ADAMS, M.D., in the Chair.

DR. J. WESLEY BOVÉE showed a

UTERUS WITH TUBES, OVARIES, AND VERMIFORM APPENDIX
ATTACHED.

The uterus was removed by splitting it down the middle anterior posteriorly and enucleating the appendages from below upward. This method he thought much better when the pus tubes and ovaries were all covered from above.

DR. W. P. CARR showed a portion of the

FEMORAL ARTERY CONTAINING BLOOD CLOT.

The patient had been caught in a brick machine and the artery torn out of the wound. The interesting feature is that there was not enough bleeding to come through his trousers. He spoke of the angiotribe acting after the same manner.

DR. J. T. JOHNSON said when the uterus is to be removed the method described by Dr. Bovée is available, but he thought it will not come into general use, as in the majority of abdominal operations this organ is left. In amputating the uterus after Baer's method he was careful to cauterize the cervical stump where it contains the canal, for fear of contaminating the parts. He thought in cutting down the whole length of the uterus a very large area of infection is opened up. He thought also that the ureter is in more danger from the ligature if the artery is cut first. Some operators find it difficult to catch the artery after it is cut through. Dr. Johnson knew a surgeon who had lost several patients after amputating the uterus by Kelly's method and having the forceps slip, being unable afterward to find the vessel.

DR. BOVÉE said unless there is a considerable discharge from the uterus he pays no attention to it. In amputating after Baer's method he puts one or two extra sutures in the cervix. After the uterus is bisected it is surprising how well the sides come up in the wound, and by pulling on the uterus the space between the ureter and the cervix is widened. When in the neighborhood of the artery he cuts slowly and seizes it as soon as it spurts. It is an easy matter to cover the cut surface with gauze if infection is feared.

DR. WILLIAM P. CARR read a paper entitled

TWISTING OF THE PEDICLE IN OVARIAN TUMORS.¹

DR. J. WESLEY BOVÉE.—Dermoids are especially apt to twist, and in operating care must be taken not to rupture the cyst wall, as the contents are very irritating to the peritoneum. Some adhesions may assist in the twisting, as of the intestines; others, as to the abdominal wall, will retard. The danger depends on the rapidity and extent of the twisting. If the growth is nourished by adhesions the twist is not so dangerous. Papillomatous growths are most dangerous, there being a large number of blood vessels and very little connective tissue.

DR. J. T. JOHNSON said the twist may occur without strangulation. The early diagnosis is interesting, but frequently diffi-

¹ See original article, p. 837.

cult. The symptoms may be attributed to colic or indigestion. A small round tumor is most likely to twist.

DR. W. S. BOWEN spoke of a very small ovarian cyst that had its pedicle twisted three times. No degenerative changes were found in the cyst wall. The mass was thought to be an ovarian abscess from the constitutional symptoms.

DR. W. P. CARR said Dr. Bowen's case illustrated a fact in regard to changes in tissues. Frequently before any change can be seen a violent poison is developed. One-hundred-thousandth of a grain acts most violently. He had not thought of hemorrhage into the cyst being so dangerous. Adhesions to the abdominal wall will prevent rotation. The abdomen should be opened when grave symptoms arise from any cause.

Meeting of January 4, 1901.

The President, S. S. ADAMS, M. D., in the Chair.

DR. E. L. TOMPKINS reported several interesting

CASES IN OBSTETRICS.

I wish to report briefly to-night a number of cases that came under my care last summer when I was in the country. The general impression is that all that a country doctor need know is how to give quinine and cathartics. I was astonished at the variety of cases I saw in the short time of three months, and I was made to appreciate the difficulties a country physician must contend with, and how easy it is for him to get a black eye, as it were, when he first starts in a new place and has bad luck for which he is perhaps not responsible. There was no other physician within a radius of ten miles. I had five obstetrical cases that were interesting, and they all occurred when the temperature was excessively high, ranging from 100° to 101° in the shade.

CASE I. *Eclampsia*.—On August 14, 1900, I received a note from a neighbor saying that a woman on his place was very sick, and he wished I would go to see her. The distance was about five miles and over very rough roads.

I found three or four women and one man in one room, in a miserable little shanty. The patient was a woman of about 40 years of age. She had had twelve children. She was lying on a dirty straw bed and was literally covered with flies. I at first thought she was dead, but almost immediately a jerking commenced in her left leg, then her arm would commence, then all her limbs, and she would have a regular eclamptic fit. In a few minutes she would have another, but in the interims there would be jerking and twitching of different muscles of the body and face. The coma was profound and lasted from one convulsion to the next one. A living child was lying between the mother's

thighs, the cord never having been cut. Some of the women present had borne several children themselves, but none of them knew enough to tie the cord and cut it.

On inquiry I found that the woman had been taken in labor twenty-four hours before I saw her and that the child had been born the afternoon before, certainly twelve hours before I got there. The convulsions had started when labor began and had kept up after the child had been born and all through the night. There were heavy beads of perspiration over her face, which was cold and clammy. Her pulse was very feeble; her urine was passed involuntarily and could not be examined. The unconsciousness had been continuous since the afternoon before. She had had no nourishment for twenty-four hours, not even water.

I gave her chloroform at once and soon had the convulsions controlled, but it was only when she was profoundly under its influence that the jerking of her legs and the twitching of the muscles of the face would cease.

As it was impossible to get her to swallow anything, I introduced a soft-rubber catheter through her nose and gave her about a pint of milk, and dissolved in it were sixty grains of bromide of sodium and one-fourth of a grain of morphia. I left more bromide and morphia to be given at stated times. There was no timepiece in the house and no bowl to wash my hands in. I went to a neighboring sawmill and got the man to blow his whistle at the times that I wanted the medicine given, and told one of the women to give the medicine when she heard the whistle blow.

I went home, but returned to see the patient late that evening. She had had no severe convulsion, but the twitching had come on from time to time since I was there. She was still unconscious, but a woman had been able to tease a little milk down by the teaspoonful at intervals. Her pulse was stronger and better than in the morning. She was still sweating profusely. The next morning I went over and found her in about the same condition. She had never recovered consciousness, but had had no convulsions since my previous visit and no twitching. Her pulse was very good.

She had slipped so near the edge of the bed that it was necessary to move her further toward the other side. When we lifted her up I was surprised to see a swarm of maggots under her buttocks and along her back. The placenta had come away perfectly whole and there had been no hemorrhage. No examination had been made per vaginam and no douche had been given. The old woman who was assisting me nearly fainted at the sight of the maggots and said she could not do anything more until she smoked her pipe. I washed the patient off with a bichloride of mercury solution, but no maggots seemed to be near the vulva. After making them remove the old straw and put in new, I left, the patient apparently in better condition than the day before, although she was still unconscious. The next morning early I was notified that she had died during the night.

I think if I could have seen her sooner and could have had a better nurse, one who had the slightest particle of sense, she might have recovered. The child continued to grow and thrive.

CASE II. *Shoulder Presentation*.—August 30, a boy suddenly appeared in my yard and asked me to come to see his mother, who, he said, had been sick for two or three days, but he did not know what was the matter with her. She lived about three miles from my house. I took my time in getting there, stopping to eat my breakfast first, and also stopping at another place before going there, not knowing that the woman was in such a serious condition.

This woman had had several children. She was taken in labor the afternoon before; had lifted a heavy tub, and had been washing clothes just before labor commenced. The right hand and arm and cord were protruding and the child was in the dorso-anterior position. The hand was blue and cold and there was no pulsation in the cord. The pulse was very weak, she was covered with a cold sweat, and she was crying out in a hysterical way. The old midwife who was there said she had been trying to put that hand and cord back all night, but could not do it.

I first gave nitroglycerin and whiskey, then a few whiffs of chloroform, and, after washing my hands carefully in a sublimate solution, I introduced my hand into the vagina and easily and quickly got hold of a foot and delivered the child without the slightest trouble, but before I could deliver the placenta she began to gasp, and died, although I stimulated all I could. The child, of course, was dead.

CASE III. *Shoulder Presentation with Spontaneous Evolution*.—Playfair describes the mechanism of this as follows: "The presenting arm and shoulder are tightly jammed down, as far as is possible, by the uterine contractions, and the head becomes strongly flexed on the shoulder. As much of the body of the fetus as the pelvis will contain becomes engaged, and then a movement of rotation occurs, which brings the body of the child nearly into the antero-posterior diameter of the pelvis. The shoulder projects under the arch of the pubis, the head lying above the symphysis, and the breech near the sacro-iliac synchondrosis. It is essential that the head should lie forward above the pubes, so that the length of the neck may permit the shoulder to project under the pubic arch without any part of the head entering the pelvic cavity. The shoulder and neck of the child now become fixed points, round which the body of the child rotates, and the whole force of the uterine contractions is expended on the breech. The latter, with the body, therefore becomes more and more depressed, until, at last, the side of the thorax reaches the vulva, and, followed by the breech and inferior extremities, is slowly pushed out. As soon as the limbs are born the head is easily expelled."

The patient was a white woman about 30 years of age. She had had one child. She was of a large frame with a roomy pelvis.

The husband, who came for me, said that a hand and the cord were down and that the midwife could not get them back. The distance to this man's house was far and it took us one hour and a half to get there. When we arrived we were told by the midwife that the pains had been very severe and that the child had been expelled "all doubled up." It was dead. I found the woman's pulse very good indeed, the placenta had come away whole, and she was in a good condition. No douches were given. She made a good recovery without any interruptions, and was driving a wagon in just one month.

CASE IV.—A woman about 25 years of age. Had had one child. On Sunday afternoon I received a note from her husband saying that she was in labor and he wanted me to come.

For some distance before reaching his house I heard her screaming at the top of her voice. When I got into the room she told me that she had no pain in her belly, but that it was in the calves of her legs, and she had her husband and a midwife rubbing them. I made a digital examination and found the head of the child well pressed down, but the os was not dilated. I thought the pressure of the head on the sacral plexus was producing pain that was referred through the sciatic to its distribution, and that was why she was having pain in her legs. I gave morphia for the relief of the pain, and left.

Early Tuesday morning I was sent for in a hurry. When I got there the child had been delivered by the midwife, but she said the afterbirth had not come. I pulled down the bedclothes to examine, and found that she had tied the cord only in one place, and the placental end was bleeding and the woman was blanched. I tied it quickly and delivered it. No douches were given. She made a splendid recovery.

DR. W. S. BOWEN said there was no doubt that eclampsia is more frequent in the poorer classes, and is growing scarcer in the upper classes where more attention is paid to the health of the pregnant woman. He believed in preventive treatment. We ordinarily pay a great deal of attention to the kidneys, when frequently the bowels need the care. Eclampsia could develop from toxins in the bowels from constipation.

DR. H. B. DEALE said he was surprised to hear Dr. Bowen say that puerperal eclampsia was due to the bowels. He agreed that we cannot judge by the examination of the urine. Urea is not a definite quantity in an individual.

DR. J. WESLEY BOVÉE said the liver acts in place of the kidneys in secreting urea and other products, and if the liver is kept active he had no doubt eclampsia would be lessened. The cholagogue cathartics act well in these cases. We do not know what product it is that causes convulsions; urea is generally accepted, but good authorities claim others with good reason. He thinks very much as Dr. Deale, that it is the nervous over-susceptibility that is the cause in constipation.

DR. E. E. BALLOCH said Erickson congratulated the Ameri-

can country physician. He said he was the best all-around physician he had ever seen. He handled all kinds of cases successfully.

DR. E. L. TOMPKINS agreed with Dr. Deale that eclampsia is due to the condition of the kidneys. Cholagogues relieve the kidneys.

TRANSACTIONS OF THE AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS.

FOURTEENTH ANNUAL MEETING, HELD AT CLEVELAND, OHIO,
SEPTEMBER 17, 18, AND 19, 1901.

SECOND DAY—*Afternoon Session.*¹

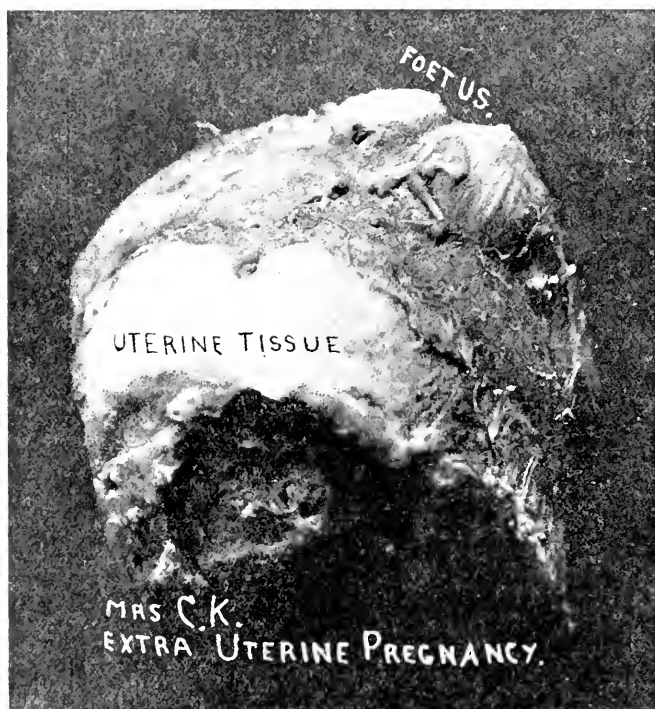
DR. GEORGE S. PECK, of Youngstown, O., read a paper on
EXTRAUTERINE PREGNANCY (*see illustration, p. 874*).

DR. H. W. LONGYEAR, of Detroit, Mich., said he had had seven cases of extrauterine pregnancy in a period of little over one year. This was nearly three years ago, and since then he had had only two. A case of extrauterine pregnancy to which he wished to refer was a young woman, recently married, with cessation of menstruation. At the end of the eighth week she began to have extreme pain in the abdomen, so that her attending physician was obliged to give morphia hypodermatically to relieve it. After this there was an intermittent flow of bloody débris from the uterus, some discharge of membrane, etc. She thought she had a miscarriage, but the attending physician was not able to find anything. Patient was sent to the hospital, and on examination a small mass was found in the right tube. The uterus was only slightly enlarged. There was a slight bloody discharge, but no appearance of any decidua. He decided not to open the abdomen, but to keep the patient under observation. There were no symptoms of hemorrhage, and considerable time had elapsed then since the appearance of the first symptoms of hemorrhage. He kept the patient in the hospital three weeks, at the end of which time all symptoms had subsided, patient became entirely well, and the mass he had previously felt in the right tube was absorbed. Six months later patient again became pregnant, in the normal way, so that he felt sure these cases did sometimes recover after rupture. Of course this was seldom, and he would not advise waiting unless it should be a case simi-

¹ Concluded from November number.

lar to the one he had mentioned. He believed in immediate operations in cases of extrauterine pregnancy with immediate rupture, without waiting, even if the patient was in a condition of collapse.

DR. HERMAN E. HAYD thought that the only course to pursue in cases of extrauterine pregnancy was to operate as soon as the diagnosis was made. He was aware that many practitioners believed that a diagnosis of extrauterine pregnancy could not be made before rupture. But that was not so. It could be made, and often was made, and most of the gentlemen present



had operated a number of times in cases where rupture had not taken place. Usually the specialist did not see these cases until rupture had occurred; then the interesting question arose for consideration: Should operation be undertaken? Should an operation be performed while the patient was in a condition of shock or of collapse, or should the surgeon wait a few hours and speculate with the hope that the patient would be in better condition so as to bear an operation? To his mind there was but one thing to do, and that was to operate at once. It made no difference what the condition of the patient might be. The operative work could be supplemented by having an assistant

inject under each breast a pint of saline solution, and, if necessary, also into the bowel.

DR. WALTER B. DORSETT said it was his fortune or misfortune to have had seven or eight cases of extrauterine pregnancy, and from these he had learned some very valuable lessons. He thought it was possible to make a diagnosis of extrauterine pregnancy before rupture in some cases. The indiscriminate use of the curette should be condemned.

He exhibited some specimens demonstrating that the diagnosis of extrauterine pregnancy could be made before rupture, the history of one of them being very interesting. The patient, 35 years of age, mother of one child, gave a history, during the time she was carrying the child, of excessive vomiting. She was confined in Columbus, O., and subsequently removed to St. Louis. After three or four years she was taken with vomiting again, cessation of menstruation, and vomited for twenty-one days. During that time frequent examinations of the uterus and pelvis were made, but no enlargement of any kind could be found. As the hemorrhage continued for some length of time, he finally concluded to do a curettement. The patient was put on the table for that purpose, he made a bimanual examination, and found a lump in the pelvis. He opened the abdomen and removed the specimen, which he had great pleasure in exhibiting. The specimen showed the fetus *in situ*. It was broken by getting it out. It was peeled out of the sac, but had not ruptured. Dr. Dorsett showed other specimens of extrauterine pregnancy.

DR. E. GUSTAV ZINKE said it was his experience that cases of ectopic gestation were found to occur in perfectly healthy women, and that the diagnosis at times was comparatively easy. This was not so, however, in all cases. In some the diagnosis was extremely difficult. One of his first cases of ectopic gestation occurred in a young woman who was pregnant for the first time. The duration of gestation was only two months. The opening of the abdomen revealed a perfectly healthy condition of the uterus and of the other tube and ovary. She became pregnant afterward and went on to full term. But what was much more interesting was the first case reported by Dr. Peck, namely, the occurrence of extrauterine and intrauterine fetation. This was exceedingly rare—so rare, indeed, that when a practitioner met with a case of that kind he considered it the first one on record. The speaker had a similar case two years ago, which he reported to the Cincinnati Academy of Medicine. He was told at that time by several members that it was an impossibility. He carefully looked up the literature of the subject, was surprised to find how meagre it was, yet he was able to collect sixty-seven cases of simultaneous extrauterine and intrauterine fetation. These sixty-seven cases ranged from the year 1708 to the present time.

DR. C. C. FREDERICK reported a case of intrauterine and ex-

trauterine pregnancy which occurred in his practice three years ago. In operating on the patient, the uterus looked peculiar, and when he entered the abdominal cavity he said to the attending physician that he believed there was a fetus in the uterus, and, sure enough, there was one a little over seven months. About two months afterward the woman was delivered of a full-term baby.

He had operated on over fifty cases of ectopic gestation, but had never seen one in his own practice previous to rupture. This simply showed how experiences varied.

DR. MILES F. PORTER, after examining the specimen of Dr. Dorsett, expressed the belief that the tube was ruptured.

DR. L. H. DUNNING discussed at considerable length and by the aid of blackboard sketches the treatment of interstitial pregnancy, and what should be done with the sac that is left behind.

DR. JAMES F. BALDWIN stated that last year he read a paper on the "Diagnosis of Tubal Pregnancy" before a meeting of the Association held in Louisville, based on eleven cases. In all of those cases the diagnoses were verified by microscopic and macroscopic examinations of the specimens removed. He hoped Dr. Dorsett would publish his cases, because the general profession was still in ignorance of the fact that these cases could be diagnosed and operations successfully performed. Dr. Baldwin then detailed some interesting cases.

DR. LEWIS S. MCMURTRY said that the older members of the Association would recall numerous discussions and papers on this subject in days when the surgical rules of pathology relating to this condition were not as clearly understood as now. So far as his experience and observation went, he thought the knowledge we now possessed regarding ectopic gestation was very reliable. It had likewise been his observation that most of the anomalous conditions found in specimens and the departures from those fixed conditions had been found to be due to inflammatory changes and changes in the blood clots that occurred in connection with the pathology of the condition.

DR. JOSEPH PRICE said that there was sometimes great difficulty attending the diagnosis of ectopic pregnancy. The history of the subject was interesting, and it was a wonder why, early in the history, gynecologists should have overlooked a condition so disastrous to patients when unoperated. Up to the time of the pioneer efforts of the Association the coroner's physicians of Philadelphia had failed to recognize extrauterine pregnancy; and this was largely true the world over, and cases were recorded by the coroner's physician as accidental hemorrhage. He could not understand why these physicians failed to see the little fetus that was frequently washed out with a handful of clots while manipulating. Up to the time of Formad ectopic pregnancy had never been recognized in Philadelphia. When he called Formad's attention to the frequency of ectopic pregnancy in his practice, and asked him why he failed to rec-

ognize the condition, he (Formad) at once began investigations and in two years reported thirty-five cases. At one time he was familiar with the interesting cases of ectopic pregnancy that occurred in Cincinnati. One woman, while shopping, was seized with an acute pain at the counter, went to a doctor's office, and before he made a diagnosis of extrauterine pregnancy and did anything she was dead. He recalled the case of another woman who died in Cincinnati in a railroad station. Accidents from ectopic pregnancy were very numerous indeed all over the country at that time.

DR. WILLIS G. MACDONALD said with relation to one of the specimens that had been exhibited, and a very considerable number of other ones he had seen on different occasions, he was led to believe that these specimens demonstrated the fact that the products of an extrauterine or tubal conception were expelled into the abdomen without any solution of continuity in the wall of the Fallopian tube; that they were expelled absolutely by the process of dilatation from the fimbriated extremity of the tube, and dropped into the abdomen.

DR. A. GOLDSPOHN referred to the frequency of actual tubal abortion, meaning by this that the entire product of conception escapes from the abdominal end without rupture of the tube wall. He thought this was more frequent in its occurrence than had heretofore been supposed. According to the findings of Sanger, of Leipzig, at the International Medical Congress held in Rome this gentleman read quite an epoch-making paper on the subject, declaring that hematocele which was found was often due to an ectopic growth simply escaping from the abdominal end of the tube; and from the speaker's experience he could say that he had found, when he had operated for a supposed ruptured tubal pregnancy, or when he had made a diagnosis of such, the ectopic product had escaped from the abdominal end of the tube, and the tube, being correspondingly wide open, looked patulous without any laceration of its walls. He had seen this more frequently than he had seen a pregnant tube unruptured.

DR. J. HENRY CARSTENS said that the diagnosis was not made very early in these cases, or until rupture had occurred, requiring the presence of a specialist. The only case he ever diagnosed before rupture was where he was called in to operate for appendicitis. When he opened the abdomen he found extrauterine pregnancy, made another opening, and removed it. The general practitioner ought to be able to diagnose these cases earlier by making a careful bimannual examination. He should be able to detect in one side or the other, in cases of ectopic pregnancy, a well-marked tumor. If this tumor was found he had no business to use the curette in such cases, thus inducing sepsis and causing death, perhaps, in many instances.

DR. M. ROSENWASSER stated that on previous occasions he had been an active participant in discussions on this subject,

and his views were well known to many of the Fellows. When he encountered his first two or three cases he found that he could not operate as quickly as he had been taught, as patients were reluctant to submit to such operations in a hurry. General practitioners at that time did not understand these cases as well as they did to-day. Patients refused operation in cases where he felt sure he was dealing with ruptured tubal pregnancy. Many cases were seen two or three weeks after rupture because the attending physicians did not recognize the condition. He found quite a number of patients who, after lying in bed two or three or even six weeks with masses in their pelvis, gradually recovered without operation. As a student of natural history, he felt it was his duty to place such patients in a hospital at rest and keep them under close observation and to see how they got along. He found those cases that had survived one or two ruptures got along very nicely, with one or two exceptions. He believed he had under observation altogether thirty-five cases, and out of that number only two had recurrent hemorrhages, and on these he was compelled to operate.

DR. HERMAN E. HAYD said he did not feel like letting the discussion close at this stage of the proceedings, because he thought the most dangerous part of the whole debate was what Dr. Rosenwasser had just said. He did not care whether occasionally a case of ectopic pregnancy recovered or not without operation. It was a most dangerous teaching to say that, after rupture had taken place and a couple of weeks' delay had occurred, such a patient should not be operated on because the patient might bleed the next day.

DR. ROSENWASSER said he would be governed by the indications.

DR. HAYD replied that if hemorrhage did not take place supuration might occur, and what was worse than a malodorous broken-down extrauterine pregnancy? He did not think there was anything in the whole domain of abdominal surgery that was worse than that kind of a case.

DR. PECK, in closing, said, in reply to Dr. Longyear, that in the light of his experience he would operate in every case. The patient was living six miles away from any physician. She had had a primary rupture. He made a careful examination and produced such intense pain that he thought he had caused a secondary rupture. He thought it well to get the patient taken to the hospital where he could watch her. She was in good condition when she arrived. He waited three days and then operated. The condition he found demonstrated the fact that it was wise to have done the operation, as the small intestine was glued over the opening of the ruptured tube; the intra-abdominal pregnancy had increased in size and would certainly have loosened the tube from the intestine, and the patient, he thought, would have bled more. She recovered in three weeks after the operation and left the hospital in good condition.

His experience had been limited to fourteen cases of extrauterine pregnancy, and in nine of these curettement had been done. He thought if the attending physicians had seen the cases early enough the other five would have been curetted. He could not speak too strongly against universal curettement in extrauterine pregnancy.

DR. JOSEPH PRICE, of Philadelphia, Pa., followed with a paper entitled

EARLY OPERATIONS IN APPENDICITIS, AND METHOD.¹

DR. JOHN A. LYONS, of Chicago, agreed with the writer that as soon as a diagnosis of appendicitis was made operation should be done; yet very few had the courage to operate immediately, and sometimes when they displayed this courage the patients would not consent to be operated upon.

DR. CHARLES GREENE CUMSTON stated that his connection with the Children's Hospital in Boston had given him an opportunity of studying appendicitis in rather young children. He had operated on young children for this disease, his youngest patient being 4 years of age. He had done a number of appendicitis operations on children between the ages of 5 and 6. He had always operated on them the minute the diagnosis was made, and in every case, some fifteen or twenty in number, uneventful recovery followed. He thought the diagnosis of the disease in the young was easy. He related a case that came under his observation a few months ago. The child was about 7 years of age. He obtained the following history from the family physician: He was out playing in the yard one afternoon, shortly after which he had partaken of a hearty supper and then retired. In the morning he woke up with pain in the right side of the abdomen, accompanied by vomiting, rapid pulse, but not much temperature. This condition continued for twenty-four hours, at the end of which time Dr. Cumston was asked to see the case. A diagnosis of appendicitis had already been made, in which the speaker concurred. Operation was decided upon at once. He opened the abdomen, and as soon as he got inside the peritoneal cavity the most complete gangrenous mass he had ever seen came up into the wound. It was adherent everywhere and walled off. He broke down the adhesions and took out what he considered to be the appendix, but it proved to be an undescended testicle. This point was not mentioned, he thought, in the differential diagnosis of appendicitis, and it was a good one to remember.

DR. LEWIS S. MCMURTRY said there were three points for consideration. First, the diagnosis of appendicitis. He knew of no one thing in which the general medical profession had so much advanced as in diagnosing appendicitis. The disease was so very common, and had been so thoroughly elucidated in

¹ See original article, p. 685, November JOURNAL.

recent treatises on the subject and in medical societies, that the knowledge of the general practitioner regarding it was very accurate and thorough; and it would be found now all over the country that where formerly there was a good deal of confusion regarding the disease, at present its diagnosis was usually very promptly made. The second question which presented itself was when to operate. This had not been settled by the profession. There were still surgeons who counselled delay, saying that there were a great many patients who would have but one attack and perhaps no more; that the attack was mild, consisting of the catarrhal form of the disease, which would clear up by resolution. There were also some practitioners, but these were very few, who insisted upon telling an intelligent public that appendicitis could be cured by medicinal means and that operations should be avoided. As to when the operation should be done, it was a matter of difference between competent surgeons. There were some able surgeons who advocated delay even in cases of suppurative appendicitis, particularly where there were likely to be complications, where the inflammatory area was very extensive and the patient's condition very critical, claiming that by delay the area of infection could be limited and closed off, and that they would encounter a pathology which was more easy to manage than in the early stages of the same pathological process. In the great majority of cases where perforation had occurred, and where inflammation was active, he thought it better to operate at once.

DR. JAMES F. BALDWIN said that we learned a good deal by our mistakes, and in relating experiences it was well to dwell on them occasionally. He mentioned a case of appendicitis in which he advocated delay, as the patient at the end of twenty-six hours was doing very well. The patient was brought into his private hospital by an excellent practitioner at the end of forty-eight hours after the onset of the attack. He was a young man, 20 years of age, a fine, vigorous-looking fellow. The attending physician telephoned Dr. Baldwin, asking him to see the case. He did so. He found that the patient had a temperature, as made out by the nurse on the chart, of 103° , with corresponding pulse rate, with tenderness, etc. That morning, as the result of cathartics, patient had a free evacuation of the bowels, after which temperature and pulse declined to practically normal. He was feeling well and tenderness had subsided. The speaker was able to feel over the abdomen in that region without eliciting any complaint on the part of the patient. In short, the patient seemed on the high road to recovery. This was his first attack, and the indications were that it was not a case for operation. He did not operate, but thought he would watch the case, and if there remained tenderness after ten days, which would show that the appendix was giving trouble, he would remove the organ through a short incision. The next morning he looked at the patient's temperature and pulse record

and found that he was doing well. On the morning of the fifth day from the time the patient entered the hospital, before Dr. Baldwin had gotten out of bed, the patient's physician telephoned him to come and see the young man as early as possible, as he was doing badly. He went to the hospital as hurriedly as possible and found that the patient was dying. He died within two or three hours thereafter. In the night, without any cause, he vomited suddenly and felt something give way, shortly after which he collapsed and died. A postmortem examination was not made, but he had made autopsies under similar circumstances, and he had no doubt that the patient's peritoneal cavity was flooded with vile pus and that he died of shock.

DR. A. GOLDSPOHN spoke of the Ochsner method of treatment of appendicitis, by which attempts are made to arrest vermicular motion of the intestines; and to do this Ochsner empties the stomach by lavage thoroughly and gives absolutely nothing by the mouth, sustaining the patient by rectal enemata. Dr. Goldspohn tried this for twenty-four hours in one case, but the patient grew worse so rapidly that he did not dare try it any longer. He therefore operated under rather extreme conditions, but obtained a good recovery of his patient.

DR. J. HENRY CARSTENS said that at a recent meeting of the Mississippi Valley Medical Association he told Dr. Ochsner that he had seen patients vomit and who had diarrhea, yet whose bowels and stomach were absolutely empty; that they kept on getting worse and finally died. He thought the teachings of Ochsner with regard to arresting vermicular action of the intestines in cases of appendicitis, to prevent patients from getting worse, were pernicious, so much so that the general practitioner resorted to it, starved his patients, kept their bowels quiet, hoping that they would get well, or he would send them to the city to undergo the interval operation. He believed there were thousands of patients dying as the result of such treatment as Ochsner had recommended. He would operate just as soon as the diagnosis was made.

DR. MILES F. PORTER asked Dr. Price whether he removed the appendix in all cases of suppurative appendicitis.

DR. PRICE replied, yes, if he could find it, and he always made an earnest effort to do this.

DR. PORTER held that any man who removed the appendix in all cases in the presence of pus would have unnecessary deaths, and he thought Dr. Price was the only man who did it.

DR. EDWIN RICKETTS fully agreed with the essayist that as soon as the diagnosis was made it was better, taking one case with another, to do early operation. Medicinal treatment gave a mortality of twenty-five per cent, while early surgical treatment meant a death rate of less than three per cent. Out of a series of nearly one hundred cases operated upon in private practice, the speaker's death rate was ten per cent. In saying this he had shouldered the responsibility of others, as he be-

lieved that every one of those ten patients could have been saved had an early operation been resorted to.

DR. C. C. FREDERICK was called about six weeks ago to see a man who was taken sick ten or eleven days previously with appendicitis. His temperature had been ranging from 100° to 101.2° , pulse varying from 110 to 115. The patient had a temperature of 102° and a pulse of 118 when he saw him, with a well-defined mass over McBurney's point. He advised operation, which was consented to. Patient was placed upon a table in the dining-room of his (the patient's) house and operated on. He broke up the adhesions and removed the adherent, sloughing appendix, washed out the cavity thoroughly, and the man died inside of forty-eight hours. He had no doubt that some practitioners would say that had he let the patient alone and waited until the abscess had become large enough and to be walled off, the patient might have recovered. The question he wanted to raise was this: Was it advisable under such circumstances in the early cases, where there were adhesions, to wait until the abscess was well defined, or to go ahead and break up the adhesions, remove the appendix, and run the chance of the patient having an acute septic peritonitis with death?

DR. PRICE, in closing, said the Fellows could recall a number of physicians all over the country who had had appendicitis. He said one of the best physicians at Columbia, Tenn., died of the disease, who had previously played billiards with his abdomen full of pus. The best surgeon of Wilkesbarre, Pa., had died of the disease. All over the country people were dying of appendicitis, and many children had died of it. Many of the children of good surgeons had been saved by early and complete, ideal operative procedures. What Dr. Cumston had said was worthy of careful consideration and study in connection with this subject. He had saved twenty children by complete procedures. He removed the appendix in every instance. There was no time to be lost in dealing with this disease. Last evening there were three fires in the prominent hotels in this city (Cleveland), and they were all extinguished and the hotels saved by the fire department. Just so in appendicitis: if we wished to save life we must work like the fire department, do complete and efficient work, and in order to do this we must go out in nine seconds and "go in" (enter the abdomen) in nine seconds, if we could. Delayed operations were dangerous. He said that out of a series of one hundred and fifty operations for appendicitis done by his brother in New Jersey, he had lost only two patients by early operations.

THIRD DAY—*Morning Session.*

DR. J. HENRY CARSTENS, of Detroit, Mich., read a paper entitled

VAGINAL HYSTERECTOMY WITH FOUR AND A HALF MONTHS' PREGNANCY AND CLOSED CERVIX.¹

DR. M. ROSENWASSER, of Cleveland, read a brief paper entitled

TUBAL PREGNANCY; CASE OPERATED IN THE EIGHTH WEEK IMMEDIATELY BEFORE THE OCCURRENCE OF RUPTURE.²

DR. C. C. FREDERICK saw a very sad case in Buffalo about six weeks ago. Rupture occurred about four o'clock one morning, not being aware that she was pregnant, having had no pain or distress in her pelvis. She had consulted her physician the day before for coryza, otherwise she was in good health. But about four o'clock in the morning she was seized with an agonizing pain in the abdomen, accompanied by some shock, and her physician failed to recognize her condition until late in the day, and later, before he got hold of anybody, she had another rupture and was pulseless, when Dr. Frederick was called and operated, but she died in a few hours afterward. He thought that had the patient felt any pain or distress in her pelvis she would have consulted her attending physician and the diagnosis might have been made. The chances of the patient were better when an operation was done at all times, particularly when there was a mass on one side or the other of the pelvis, when the patient was having pain and there was a history of skipped menstruation, with the possibility of extrauterine pregnancy existing. A section would not do any harm. If it was a ruptured tubal pregnancy it might be a fixed point for subsequent trouble which would jeopardize the patient's health and life a great deal, and it was better for her to undergo a section and have it removed.

DR. EDWIN RICKETTS said that the operation for extrauterine pregnancy, as suggested by the essayist in his case, was the best procedure that could have been advocated. He thought it was unfortunate if the information went out from the Association that in cases of ruptured tubal pregnancy we should wait for the possibility of arrestation before resorting to surgical intervention. If we were to take a series of one hundred cases of extrauterine pregnancy in which the earliest possible diagnosis had been made, followed by early surgical intervention, we would find that many more cases had recovered than from any delayed plan of treatment that was instituted after rupture had taken place.

DR. ROSENWASSER, in closing, said he was very glad the subject of extrauterine pregnancy had come up, because he feared some of the Fellows had misunderstood his position. By referring to his previous papers published in the proceedings of the Association for 1893 and 1894, they would be able to get a clear idea of the position which he occupied. Out of thirty-

¹ Will be printed in a succeeding number of the JOURNAL.

² See original article, p. 701, November JOURNAL.

five cases of circumscribed hemorrhage which had ceased and had formed a distinct tumor, he had eighteen recoveries without operation. He wished to be understood as saying that he did not advocate anything of this kind when there was free hemorrhage in the abdominal cavity. Dr. Price in 1892 had published a paper in *THE AMERICAN JOURNAL OF OBSTETRICS* in which he made use of the expression that those patients who recovered without operation were rare, and in most cases those who advocated the rest treatment based their notions on the vaporings of fancy. Dr. Rosenwasser said that he had published nothing up to that time, but had in his collection twelve cases, of which nine had recovered without operation. He therefore felt it incumbent upon him to challenge the statement of Dr. Price, and the following year read his first paper before the Association. He was not opposed to operation in these cases, but he had selected certain cases in which he took exception to the rule that all cases should be operated on. He hoped the Fellows would reread his papers on this subject, so as to get a clearer idea of the true position occupied by him.

DR. A. GOLDSPOHN, of Chicago, read a paper entitled

INDICATIONS, TECHNIQUE, AND REMOTE RESULTS OF SALPINGOSTOMY AND OF RESECTION AND IGNIPUNCTURE OF THE OVARIES WITH A TABLE OF A HUNDRED AND FOUR CASES.¹

DR. C. C. FREDERICK thought it was well that conservatism was beginning to make itself manifest with reference to the treatment of diseased tubes and ovaries. He thought a great deal of unnecessary and unsatisfactory work had been done in the past, and he was very glad the majority of good men to-day were using their utmost endeavors in abdominal and pelvic surgery to retain every vestige possible of tube and ovary, especially the latter.

DR. EDWIN RICKETTS reported cases to bear out the work so ably advocated by Dr. Goldspohn. It was a subject demanding more and more attention, and as a profession we would be better able to differentiate, after the abdomen had been opened, in regard to diseased ovaries and make an effort in certain cases to save as much as possible. Even if it became necessary to make a second operation to save a portion of one ovary, it was well worth the effort.

DR. CHARLES GREENE CUMSTON said, in considering the question of cystic ovaries, according to his experience there were two distinct types. There was the sclero-cystic ovary, which was usually a small, contracted, white ovary. This ovary was found in multiparae. A second type of cystic ovary was what he would call cystic degeneration, pure and simple. In these cases the ovary was enlarged and on section found to be very succulent, and these cases were more prone to occur in the un-

¹ See original article, p. 577, November *JOURNAL*.

married or in the nulliparous patients. Both types gave rise to the same amount of pain, which was very distressing, whether the ovary be prolapsed or in place. The succulent ovary, on account of its weight, was almost always found in the posterior cul-de-sac; while the sclero cystic ovary, small, white, and contracted, had no tissue in it that could be left behind. These ovaries had to be resected, because the patients were usually women who had had their share of child-bearing, and to render them sterile was of less importance. On the contrary, in the succulent, cystic ovary we were dealing with entirely different conditions. We had a young woman, either married a few years or unmarried, and in those cases it was essential to retain a certain amount of ovarian tissue at any cost.

DR. GOLDSPOHN, in closing, said that in his haste he neglected to refer to the results of pregnancy. Of the twenty-nine vaginal cases, one became pregnant; of the thirty-seven ventral sections, one became pregnant. Of the fifty-nine inguinal cases, eight became pregnant. They went on to maturity except two, who had induced abortions, and one of ten aborted without known cause. He had not had any case of pregnancy occur from a tube that he had reconstructed of which he knew. As to pain in these cases, his experience was that cystomata of ovaries that were usually ten times larger than the ovaries in their beginning caused almost no pain as long as they were not large enough to embarrass neighboring organs by mechanical interference. Many such ovarian cysts of the size of a fist, or even larger, had he allowed to go unoperated because they did not produce any symptoms. He simply discovered these cysts accidentally, but the patients did not complain; but when he knew that they were not in a position to undergo abdominal section, he did not even tell them they had such cysts until the proper time came for them to be subjected to operation.

DR. C. C. FREDERICK, of Buffalo, read a paper entitled

SOME RARE AND ODD CASES AND EXPERIENCES IN PELVIC AND ABDOMINAL SURGERY, AND THE LESSONS THEY TEACH.¹

DR. CHARLES GREENE CUMSTON, of Boston, read a paper on
PATHOLOGY AND TREATMENT OF HOURGLASS STOMACH, WITH A
REPORT OF TWO CASES.

DR. HENRY D. INGRAM, of Buffalo, followed with a paper entitled

PERSONAL EXPERIENCE WITH UTERINE FIBROIDS.²

¹ See original article, p. 674, November JOURNAL.

² See original article, p. 666, November JOURNAL.

The following officers were elected for the ensuing year: *President*, Dr. Edwin Ricketts, Cincinnati, O.; *Vice-Presidents*, Drs. Charles Greene Cumston, Boston, and Miles F. Porter, Fort Wayne, Ind.; *Secretary*, Dr. William Warren Potter, Buffalo, N. Y. (re-elected); *Treasurer*, Dr. X. O. Werder, Pittsburg, Pa. (re-elected).

Washington, D. C., was selected as the place for holding the next annual meeting. The time fixed by the Executive Council is the third Tuesday in September, 1902.

BRIEF OF CURRENT LITERATURE.

OBSTETRICS.

Technique of Cesarean Section.—Matthew D. Mann,¹ when performing celiohysterotomy, makes an incision eight inches long. After the abdomen is opened all bleeding is stopped. An elastic tube should be placed about the cervix to act as a tourniquet; this should not be tightened until needed. Next the uterus is incised, either in the median line or between the cornua. The uterine incision should be made slowly down to the amniotic sac; it should then be rapidly enlarged with blunt-pointed scissors until it is about six inches long. If the placenta is in the way, it should be pushed one side or torn in two and the child rapidly extracted. After the child is extracted the uterus should be made to contract by manipulation or by an injection of saline solution. As additional excitants the endometrium may be painted with tincture of iodine and the patient allowed to come partly out from under the anesthetic. After the uterus has contracted the uterine wound should be closed with catgut, preferably formalin catgut. Two rows of sutures are used—one of heavy gut which passes through the muscular wall without penetrating the decidua; the other of fine gut for the peritoneal coat. After the uterus is closed the abdomen is freed from liquor amnii and blood and the abdomen closed.

When performing celiohysterectomy the abdomen is opened as before, but the incision may be extended lower than in the Säger operation. The tourniquet is then applied. If the child be alive, the same steps should be followed for its extraction as in the other operation. If the child be dead and the uterus septic, then the entire uterus should be raised from the abdomen, sponges or towels being placed behind it, and not opened until after its removal. The operator has the choice of using clamps and tying the vessels after the uterus is removed, or of tying as he goes. The latter plan seems preferable. The first ligature should be placed beyond the tube and ovaries on the broad ligament, so as to include the ovarian artery. The round ligaments should then be tied, after which the peritoneum should be incised all the way around the uterus. It can then readily be pushed

down so as to separate the bladder from the cervix. After the cervix is freed of peritoneum, the uterine arteries should be tied on each side, when the cervix may be either taken out completely or cut off a little below the internal os. If the cervix be infected or be the seat of a cancer, or be very much injured by previous manipulation, or if it be the seat of marked laceration from previous labor, it should be entirely removed. Usually very little hemorrhage will be encountered. All bleeding points should be carefully secured with fine catgut ligatures. As the uterus can be drawn well up out of the pelvis the Trendelenburg position is hardly necessary, though some have advocated its employment. The next step is to pass a piece of iodoform gauze through the cervix into the vagina, the upper end of it being left projecting a slight distance above the cervix. The object of this is to prevent an accumulation of blood below the closed peritoneum and above the cervix. After this the peritoneal flaps should be carefully trimmed, and then brought firmly together with the continuous catgut suture, all stumps being turned in and covered by peritoneum. The abdominal wound is then closed, and the patient treated as in the other operation.

After performing Cesarean section with a restricted set of instruments in a case of deformed pelvis, Fourmeaux³ was unable to check the uterine hemorrhage by the ordinary methods and could arrest it only by inverting the uterus into the vagina. Bleeding stopped as soon as the uterus was inverted, and a supra-vaginal amputation was then successfully carried out.

Symphyseotomy as Contrasted with Cesarean Section.—Charles Jewett¹ believes that, within a limited range of pelvic contraction, symphyseotomy is still a useful operation. It is suited to conditions in which only very little additional space is required. It is a valuable resource in cases in which forceps unexpectedly prove inadequate. Axis-traction forceps with the aid of posture should be tried before resorting to symphyseotomy. Its results would be much improved by restricting it to pelves with a conjugate of not less than 7.5 centimetres in simple flatness or 9 centimetres in general contraction. Under equally favorable conditions its total mortality should be no greater than that of Cesarean section. When the pelvic space permits it should replace the Cesarean operation in the presence of exhaustion. It may be elected primarily as an alternative of Cesarean section when the operator can be assured that the degree of obstruction is well within its safe limit. Within its proper field symphyseotomy is better than Cesarean section for an operator of little experience in abdominal surgery.

GYNECOLOGY AND ABDOMINAL SURGERY.

Lacerations of the Cervix.—Henry D. Beyea⁵ says the chief contraindication to operation on a lacerated cervix in the presence of pelvic inflammatory troubles outside of the uterus, the

presence of disease of the tubes and ovaries. The presence of pyosalpinx exposes the woman to the danger of an acute attack of pelvic inflammation if the uterus is subjected to traumatism and manipulation incident to trachelorrhaphy. As other lesions generally coexist with a lacerated cervix, these lesions must be treated, if we expect to get good results from a trachelorrhaphy. When the cervix is hypertrophied, hyperemic, chronically inflamed, full of Nabothian cysts, sclerotic, and presenting a wide surface eversion, it must be treated locally before an operation can be done. Such treatment consists in the free puncture, every four days, of the whole cervix to evacuate the cysts and relieve congestion. To still further aid this depletion, the whole vaginal vault and cervix should be painted with Churchill's tincture of iodine, and a glycerin or glycerin-and-ichthyol tampon introduced and left for twelve hours. Copious douches should be given twice daily. With the above treatment and rest the local conditions greatly improve, as do also the general symptoms. If in a few weeks there is no decided improvement, it is doubtful if the operation of trachelorrhaphy will do any good, and Beyer advises amputation of the cervix. Before a trachelorrhaphy it is advisable to do a curettage. In making the denudation great care should be taken to remove all cicatricial tissue. No portion of a Nabothian cyst should be left in the line of denudation. The excision of tissue should be done as nearly as possible in the plane of laceration.

Retroversion.—Franklin H. Martin, "when operating for this condition, makes two incisions, one over each pubic spine parallel with Poupart's ligament, and frees the round ligaments. He now passes a forceps through one of the openings and grasps the ligament of the opposite side and ties it to the remaining round ligament in front of the parietal peritoneum. The advantages of this operation are, he claims, that both ligaments are equally shortened; that no sutures are necessary, thus doing away with a possible means of infection; and that there is no pain at the point of attachment, as is frequently the case in the ordinary Alexander's operation. In performing ventrofixation Martin cuts a strip of peritoneum from the parietes with its base at the pubes; he passes this strip through a buttonhole in the fundus of the uterus and attaches its free end to the upper end of the abdominal wound. He places two temporary sutures to hold the uterus in place until adhesions have formed. The advantages of this operation are: first, its simplicity and ease of accomplishment; second, the thoroughness of fixation; third, it positively does away with any form of permanent buried sutures; fourth, it accomplishes a fixation which allows of a large range of movability; fifth, the fixation does not directly involve the appendages; sixth, experience demonstrates that the point of fixation is not the source of subsequent irritation or pain; seventh, the possibility of pregnancy occurring and going on to normal confinement after this operation.

Vaginal Puncture and Incision.—K. Franz¹ has studied 81 cases in which vaginal puncture was done in Fehling's clinic, in 35 of which an incision was also made. The clinical diagnosis was confirmed by puncture 56 times; in 5 a doubtful diagnosis was decided; and in 10 the diagnosis was changed. Puncture is of special value for differential diagnosis of tubal tumors in Douglas' pouch, whether inflammatory, following tubal pregnancy, or from pelvic peritonitis. Incision gives its best results in uncomplicated abscesses in Douglas' cul-de-sac. It is contra-indicated for hematocele. In this the healing is no more rapid than without operation and there is always a great chance of infection.

The Process of Healing in Resection of the Ovary.—Ettore Bidone² from his researches states that the hemorrhage produced in resection of the ovary is arrested without suture, providing that no large vessel of the ovarian substance or of the hilum be wounded. Linear incisions, even when deep, close and unite spontaneously without leaving any trace, with the possible exception of some adhesion between the surface of the ovary and the peritoneal covering of some abdominal viscus. Cuneiform wounds, true resections, unite by means of the formation of young connective tissue, originating largely from the connective tissue of the ovary, and therefore cicatricial. This is finally either pushed toward the surface, no trace of it remaining at the point of union, or else it remains as a cicatricial band joined to the medullary substance and the hilum, according to the extent of the ovarian lesion. Regeneration and development of the ovarian tissue follows the usual course, and restores the somewhat diminished ovary to its normal form and structure, unless, indeed, a cicatricial band should have divided the organ into two parts. This restoration is due to the process of neoformation and of ripening of the primordial follicles, which, according to Paladino, goes on in woman from fetal life until old age. It can therefore be asserted that in cases of resection, lesion, etc., of the ovary there is a continuous regeneration of tissue, and that should only a small portion of the organ be left it will still be restored to its primitive shape, although not to its original size, and will continue to exercise its functions. This will of course more readily occur if some blood vessel remains connected with it, although, as experimental research has shown, a portion of the ovary will survive even when transplanted far from its original site, in contact with the peritoneum, from which it then derives its nourishment.

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DISEASES OF CHILDREN.

Association of Anemia with Chronic Enlargement of the Spleen.—Arthur H. Wentworth¹ reaches the following conclusions in his study of this disease in children: 1. The blood changes are those of a secondary anemia, the degree varying in different cases. 2. The degree of cachexia does not always correspond to the blood changes, which are often moderate rather than severe. It is not improbable that the cachexia and other symptoms are produced by a chronic intoxication similar to that produced by cancer, tuberculosis, etc., and that the splenic and blood changes are merely two of the results which are thus produced: the source of the intoxication is unknown. 3. It is not easy to see how fibrous changes in the spleen can produce toxins. Fibrous tissue in itself cannot be considered capable of producing toxic or other substances. It can produce mechanical disturbances by interference with the circulation, or from the increase of size which it may produce in an organ, or by interference with the functions of an organ through injury to the cells. We know that the splenic functions are not essential to the life, or apparently to the health, of an individual, therefore an interference with its functions could not produce the symptoms described as characteristic of anemia splenica. 4. If it were possible for fibrous tissue to produce toxic substances, it is difficult to account for the absence of such substances in connection with chronic hyperplasia of the spleen when associated with a variety of well-known causes. 5. The statement that the splenic alterations are primary, preceding all of the other symptoms, requires further observation to confirm it. 6. The lesions found in the spleen do not warrant the statement that this condition is related in any way to pseudoleukemia. There is no analogy between the hard, glandular form of malignant lymphoma and the lesions of chronic hyperplasia of the spleen. 7. A tendency to generalize from observations made on one or two cases is to be deplored. In the case of splenic anemia nothing characteristic of a primary disease has been discovered in any organ or in the blood. 8. The evidence is conclusive that anemia infantum pseudoleukemica is a *secondary anemia*, and that it owes its peculiar symptoms and blood changes to the occurrence of severe anemia at an early age. 9. There is little doubt that anemia infantum pseudoleukemica and anemia splenica infettiva are identical conditions, and there is even less proof that anemia splenica infettiva is a primary disease of the spleen than that anemia infantum pseudoleukemica is a primary disease of the blood. 10. There is no apparent connection between the character of the blood and the splenic changes in infancy. Cases with identical lesions in the spleen—namely, chronic hyperplasia—show varying degrees of anemia. At times there are marked changes in the blood, and at others the changes are very slight. The degree of leucocytosis varies in the same way. In some cases it is considerable, and in other

cases the number of leucocytes is normal or even diminished. 11. These differences cannot be explained by the duration of the condition in many of the cases. All that one is justified in concluding about these secondary anemias of infancy is that in some cases there occurs a chronic hyperplasia of the spleen, and in others the spleen is not altered. 12. The names anemia splenica, primary splenomegaly, anemia splenica infettiva, and anemia infantum pseudoleukemica are objectionable because they are misleading. Anemia splenica has been used for many years as one of the synonyms of pseudoleukemia, and should not be used to describe conditions that are in no way related to pseudoleukemia. No evidence has been furnished that justifies the use of the word "primary" in connection with splenomegaly. The same may be said of the word "infettiva" (infectious) in connection with the infantile form of splenic anemia. Anemia infantum pseudoleukemica is a secondary anemia of infancy and in no way related to pseudoleukemia.

Congenital Idiocy.—Isaac A. Abt² recognizes three chief varieties of idiocy: the congenital, the developmental, and the accidental or acquired. Under the congenital are included cases arising from the hydrocephalus and microcephalus, also scrofulous cases, those which occur in consequence of an infantile cerebral palsy, the Mongolian idiots and cretins, cases of amaurotic idiocy. The developmental forms include the epileptic and the syphilitic cases. The acquired include those cases which result after injury, fever, or toxemia. In considering the etiology it is evident that a neuropathic tendency frequently tends to produce an offspring of an inferior mental grade. If parents themselves have little mental quality, they can scarcely transmit a high degree of intellect to their children. Alcoholic parents are liable to beget idiotic children. If, in consanguineous marriages, both parents possess points of inferiority, this is represented in the offspring. Syphilis may be inherited in such a way as to produce idiocy. Certain symptoms are more or less common to the entire group of cases of idiocy. In early infancy it is difficult to diagnose this condition, because active cerebration and active psychical life have not begun. There may be some gross defect of the head, as microcephalus, hydrocephalus, asymmetry or stigmata of degeneration, as asymmetry of the ears, or high arched palate, defects in form and shape of mouth, or constant protrusion of the tongue. Incessant crying, dribbling of saliva, fetid exhalation from the skin, abnormal meddlesomeness and troublesomeness, or perhaps apathy or cruelty, may indicate the condition. Mongolian idiots are the little, dwarfish fellows with eyes half-closed and set obliquely and peculiar yellowish color of the skin. Amaurotic family idiocy occurs chiefly in Russian Jews. There are progressive blindness and low sensibilities. Death usually occurs before the second year. Children who suffer from microcephalic idiocy frequently have convulsions. Hydrocephalic idiocy may be congenital or

acquired. The paralytic variety of idiocy includes the large category of cases which belongs to the class of infantile cerebral palsies. Most of these children suffer from pronounced cerebral or meningeal injury during the act of birth, the injury having resulted in a hemorrhage, and the hemorrhage having finally terminated in a sclerosis, in the formation of a cyst, or the condition of porencephalia. Idiocy that occurs by deprivation is illustrated by the case of Laura Bridgman, who at the age of 2 lost sight, hearing, and smell. By training she was saved from a condition of mental blankness. The treatment of cases of idiocy consists, first of all, in correct feeding, hygiene of the skin and the muscular systems. By perseverance cleanly habits can usually be taught. The most important element in the treatment consists in carrying out pedagogic methods, which is best done in institutions. Many of these unfortunates may be taught some light though useful occupation.

Cretinism.—Charles S. Millet³ says that the organs which are affected by this peculiar disease are the brain, skin, mucous membrane, bones, generative organs, and blood, and all of them to about the same degree, although in many cases the body is apparently more diseased than the brain; yet when treated the nervous system shows the least improvement. The severity of the symptoms is, of course, somewhat dependent on the length of time the disease has lasted when seen and on the age when it began, but mainly on the degree of impairment of the function of the thyroid gland. Cretinism may be confounded with fetal rickets, idiocy, and infantilism. The children that suffer from congenital rickets are dwarfs, but they do not show changes in the skin, nor are they degenerates mentally. The cardinal symptoms of rickets are present to guide us. Idiotic children, not cretins, do not suffer from retardation of growth: their heads are often very small and the fontanelles close prematurely. Again, the skin and facial aspect are enough to make a differential diagnosis, except in the Mongolian type of idiocy, which resembles cretinism to a marked degree, so much so that the author would be inclined to try the effect of thyroid treatment on such a case. But mentally the Mongolian idiots are vivacious and mischievous—never apathetic. Cases of infantilism that are fat, and especially if they have adenoids, might easily be called cretins: but here again the condition of the skin renders a faulty diagnosis very unusual. Early and slight forms of the sporadic cretinism are often overlooked: the mental apathy, muscular weakness, stoppage of growth, dryness of skin, together with subnormal temperature, if grouped together, no matter to how slight a degree the individual symptoms are present, are enough to justify an experimental course of treatment with the sheep's thyroid. In the disease under consideration, when autopsies have been made, the gland has sometimes been found wanting, sometimes atrophied with marked increase of the connective tissue, and degenerative changes in the cells and

their nuclei; and sometimes a goitrous condition is present, and this is probably in the nature of a compensatory hypertrophy. The morbid changes in the skin and mucous membranes are due to the infiltration of a gelatinous substance which penetrates the connective tissue; this produces great compression on the hair follicles, sweat and sebaceous glands, which accounts for loss of hair and absence of sweating. The cranial bones are thick; the brain is small, with coarse convolutions; the long bones are shortened, and, on account of a peculiar crook, their extremities are apparently, although not really, enlarged. There are no visceral lesions peculiar to the disease. The thyroid gland is best given in a powder, since it dissolves rapidly upon the tongue, and none is lost even if the patient is unruly. Whenever the temperature goes above 100° , or the child becomes very nervous and does not sleep, the remedy must be diminished or stopped for a while. Later, when the nutritive changes are fully re-established, a very moderate dose once or twice a week may be sufficient.

High Temperatures in Scarlatina and Measles, as Related to Gastro-intestinal Toxins and Fermentation.—Arthur De Voe⁶ says that there are many clinical facts tending to support the belief that the exanthematous diseases are, like most occurring in this period of life, intimately related to the mucous and digestive systems of the body. As bearing upon this question of high temperatures, the eruption, swellings, and various sequelæ of these diseases, the author has the following observations to offer: 1. Temperatures of 103° to 106° F. in scarlatina and measles decline promptly by one or more degrees from an injection of a pint or more of cool water containing two to ten grains, according to age of patient, of sulpho-carbolate of soda per rectum. 2. In the same conditions, and even in the same cases, the cold bath has not acted with so much or so happy effect. 3. When the enema has been ejected without accomplishing a movement of the upper bowel, melioration of temperature has nevertheless been noted. 4. Offensive gases and intestinal dejecta are often in evidence from these enemas and a more notable reduction of temperature then ensues. To secure this effect repeated attempts may be required. 5. Sulpho-carbolate of soda and other suitable intestinal antiseptics prove useful when given by the stomach also. 6. Many of the children having scarlatina and measles with high temperatures are observed to have one or more carious teeth in the mouth, generating toxic influences for the lower digestive tract. It is of interest to note here that these diseases prevail especially during the irritating periods of teeth formation, growth, decay, and exuviation. 7. The mouth and pharynx, the proximate cavities of the digestive tract, being accessible to observation and treatment, should be frequently cared for by brushing or wiping the teeth and by cooling and non-irritating washes and gargles of antiseptic quality, especially during periods of high fever. 8. Post-scarlatinal nephritis

should always be in mind when directing treatment of this disease. Intestinal antiseptics as it may be promoted, and asepsis as it may be urged by cooling enemas, give aid and comfort to the kidneys, the daily excretions from which should be carefully and intelligently watched. 9. High post-eruptive temperatures are often and have been repeatedly traceable to infelicities of indigestion and digestion, and are more effectively relieved by prompt and sufficient enemas than by any other treatment. 10. These high post-eruptive temperatures repeatedly rising in the same individual have been accompanied synchronously by sensible increase of submaxillary swelling and tenderness, followed by the quick abatement of these lymphatic swellings along with the reduction of temperature from cooling antiseptic enemas. This reaction, many times repeated with the same sequence and relation, would indicate that intestinal toxins have been absorbed with the chyle and distributed to the tissues at large, creating fever and temperature, and have been thence resorbed by the lymphatics, creating swelling, pain and tenderness at various irritable centres, as in the glands of the neck, etc.; and when the irritation persists and the toxins are allowed to accumulate to repletion, suppuration results. Enemas to be most effective should be made to reach and relieve the upper bowel. The existence of diarrhea is not a contraindication. Frequent flushing of the bowels in the management of typhoid fever, Asiatic cholera, and other gastro-intestinal diseases has had eminent professional endorsement. And the author holds that pneumonia, meningitis, and other diseases developing high temperatures, and in which autotoxins accumulate and are active, sometimes promoting lymphatic swellings and abscess, are likewise well within the sphere of aid by these cooling and antiseptic flushings and treatment of the alimentary canal. This internal irrigation does not necessarily interfere with anybody's usage or convictions as to the employment of cathartics. But if intestinal antiseptics can be secured without such forcing drugs, there will remain a larger capacity for other medicinal reactions, unattainable by enemas or other routine measures at the hands of the nurse. Evidences of the usefulness and harmlessness of these irrigating measures are so convincing that their omission from daily routine treatment must in time become unusual and be justly stigmatized as negligent and reprehensible.

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